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Telephony

THE AMERICAN TELEPHONE JOURNAL

PUBLISHED EVERY WEEK
BY TELEPHONY PUBLISHING CORP.
608 S. DEARBORN ST., CHICAGO, ILL.

DECEMBER 13, 1924. [VOL. 87. NO. 24]
Entered as second-class matter Sept. 4, 1903, at the post office at Chicago, Ill., under act of March 3, 1879.

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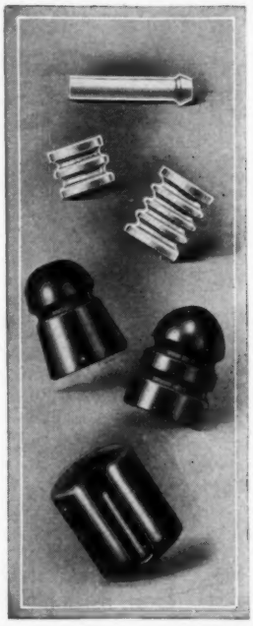

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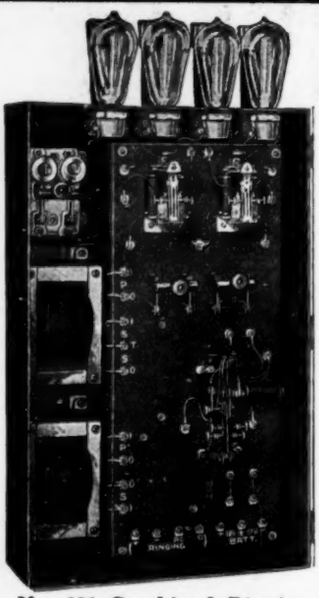

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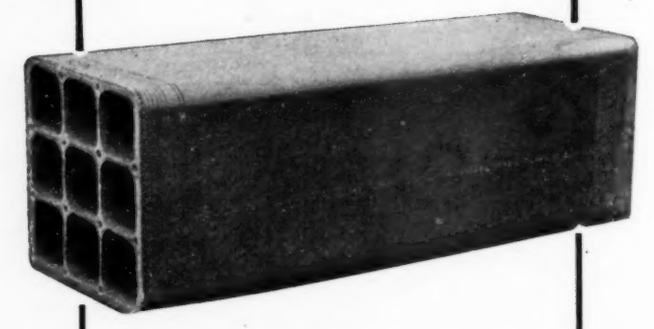

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Telephony

THE AMERICAN TELEPHONE JOURNAL

Comprising Telephony, American Telephone Journal, Telephone Weekly, Telephone Magazine, Telephone Securities, The Telephone, Sound Waves
PUBLISHED WEEKLY BY TELEPHONY PUBLISHING CORP.
608 S. Dearborn St., Chicago

H. D. FARGO, President and Treasurer
S. R. EDWARDS, Editor and Secretary

J. R. HASTIE, Vice-President and Advertising Manager
H. D. FARGO, Jr., Western Advertising Manager

Entered as second-class matter September 4, 1908, at the postoffice at Chicago, Ill., under act of March 3, 1879.

Volume 87
Number 24

CHICAGO, SATURDAY, DECEMBER 13, 1924

Subscription—10 Cents a Copy
$3 a Year U. S., Cuba and Mexico
$4 Canada, $5 Other Countries

HOW TELEPHONE ASSOCIATIONS HELP

Within a few weeks the legislatures of most states—38 to be exact—will be in session to grind out the usual grist of new laws, and telephone associations will again have to mount guard to defend the interests of operating companies.

Nearly every session produces one or more bills calculated to result in legislation hostile to public utilities, and one of the most valuable services performed by these associations is in their vigilant opposition to such measures which would injure the industry and be of no real benefit to the public.

* * * *

Other public utilities have associations on the same job, but it is not claiming too much to assert that the various state telephone organizations do more effective work in protecting their companies than any others. This is distinctively to the credit of the telephone associations and should be appreciated by operating companies.

It means hard work by the officers and their committees in charge of legislative matters. Their efforts should be heartily supported by every company in the business, for all companies are benefited.

* * * *

This one service rendered by the associations should induce all companies in the telephone business to join their state association and cooperate in the work being done in their behalf.

Of course, the good accomplished by such efforts helps all—non-members as well as members—but the average man feels like supporting an organization which is working for his welfare. At least he ought to, and just at this time the legislative situation seems to furnish a strong reason why all operating telephone companies should be identified with their state associations and support their efforts for the protection of the business as a whole.

* * * *

Generally speaking, authors of legislative bills aimed at service companies introduce them and urge their passage so as to win popularity as friends of the people anxious to "curb the corporations." That is political demogoguery.

There are times, however, when advocates of such bills honestly think the companies should be subjected to certain restrictions, or compelled to change their methods.

In either case, nine times out of ten the legislator is on the wrong road; he does not understand the situation, and his proposal would not improve conditions but would seriously embarrass the companies. The telephone association, which has been vigilantly watching the progress of events, jumps into the breach, explains matters to the legislative committee, and almost invariably the obnoxious bill is pigeonholed.

* * * *

It is impossible to over-estimate the value of such association work. Particularly in New York, Ohio, Indiana, Minnesota, Missouri, Iowa, Nebraska, California, Texas, Pennsylvania, Wisconsin, Illinois and Kansas, state telephone associations have rendered invaluable service along this line.

Organized effort is essential in combating adverse legislation, and Independent telephone men, as is often proved, are especially well qualified to exert the influence necessary to prevent the adoption of laws that would accomplish nothing but the embarrassment of operating companies.

In Illinois the legislature, which meets next month, will be asked to pass a "home rule" law giving such cities as so desire the right to control and regulate their utilities themselves, without regard to the state commission. Chicago radicals are urging this local control idea, having the street railway situation especially in mind.

Illinois telephone companies, who prefer state regulation to the old-fashioned municipal control, will have something to say about that—and it will be a-plenty.

* * * *

Like all human agencies, regulation of public utilities by state commission is not perfect, but the test of experience has proved it far preferable to the old scheme of municipal control. As the commission and the service companies have become better acquainted with each other, and more familiar with each other's problems, results have been more satisfactory for both.

The telephone associations have been influential in bringing about more cooperation between the companies and the rate-makers, and to the marked advantage of

both sides. Individual companies used to feel timid and lonesome when dealing with a state commission, but now are more confident when backed up by an association, for "there is safety in numbers."

That, by the way, is another reason why every telephone company should be an active member of a telephone association.

* * * *

In Michigan the coming legislature will be asked by the state authorities to pass a law having a direct and important bearing on the telephone situation. The utility commission will present a bill designed to check the operation of the contract under which the Michigan Bell Telephone Co. pays the American Telephone & Telegraph Co. 4½ per cent of its annual gross earnings for various services.

The commission ordered the Michigan Bell to reduce rates 12 per cent, but the state supreme court ruled otherwise several weeks ago, and upheld the 4½ per cent contribution to which the commission had objected. Now the state plans to nullify the court's action by the passage of a bill which will specifically prohibit the formation of contracts between utility corporations, insofar as such contracts may react against the public.

This is a new way of attacking the much-discussed 4½ per cent contract, and will precipitate a hard fight which will be observed with close attention by all telephone interests and some commissions.

COMING STATE TELEPHONE CONVENTIONS.

South Dakota, Aberdeen, January 14, 15 and 16, 1925.

Minnesota, St. Paul, St. Francis Hotel, January 20, 21 and 22, 1925.

Wisconsin, February 10, 11 and 12.

Nebraska, Lincoln Hotel, Lincoln, February 17, 18 and 19, 1925.

North Dakota, March 10, 11 and 12.

Ohio, Columbus, New Southern Hotel, March 24, 25 and 26, 1925.

Kansas, Topeka, Hotel Kansan, April 7, 8 and 9, 1925.

Pennsylvania, Harrisburg, Penn Harris Hotel, May 5, 6 and 7, 1925.

New York, Rochester, Powers Hotel, May 13, 14 and 15, 1925.

More Maintenance, Less Rebuilding

Proper Maintenance of Plant Eliminates Necessity for Rebuilding—Suggested Maintenance System Provides for Periodic Inspection of the Entire Telephone Plant and Immediate Repairs—Practical Maintenance Hints

By R. W. Garner,

General Plant Superintendent, Texas Telephone Co., Waco, Texas

What does maintenance really mean? Noah Webster would say the act of maintaining. Maintain means to hold, or keep in its original condition; so, applied to *our* job, it means keeping our plant in its original condition.

Of course, we understand that a few of you have plants which were badly run down when you took the job, but these are being gradually repaired and rebuilt and it will be up to you then to maintain them in their original rebuilt condition.

Did you ever hear of a railroad being rebuilt? I never did, and if you will observe a little you will find that the maintenance of so many miles of track is put up to a section man, who, with the necessary number of men, keeps his section of track in its original, efficient condition.

Comparing our business with the railroad, both of which are common carriers, our pole line, cable and wires are the *tracks*, over which we do the carrying; therefore it is the most important portion of our plant to be maintained in its original efficient condition. It follows then, that if our plants are regularly inspected and all repairs immediately made, they will never have to be rebuilt.

It is not a hard job to maintain a plant properly if you just adopt a system—and then *stick to the system*. Here is a suggested system, which I know from experience is a good one.

Most of you have a desk calendar pad, or at least an office calendar. Select a date in each month, when there is a lull in your commercial or traffic duties and write the words, "Plant Inspection."

Generally about the 16th is a good time. Make this notation on your calendar on the same date in every month of the year. On the 17th to 20th write, "Plant Repairs." When you get to your office on the 16th and turn your calendar pad, you will see the notation "Plant Inspection."

Don't let anything, except trouble, interfere with a trip over your entire plant. In doing this, make notes of all irregularities, such as broken poles, guys, bad anchors, cable rubbing poles, tree limbs, roofs, etc., cable sleeves down, cable rings missing, or pushed along messenger; light wires crossing over messenger, or in close proximity underneath; drops lying on, or close to light wires, etc.

Next day, as soon as the regular trouble is cleared, see that your car contains wood cable armor, metal tree guards, drop wire, wood moulding, No. 12 annealed copper wire, 20-inch strips of old 25 or 50 pair cable sheath, split in half; one-bolt messenger suspension clamps and a few through bolts of different lengths. Then with the proper tools you are prepared to make permanent repairs.

Let us suppose your first item is a case where electric light wires cross over the messenger. Place the wood messenger guard, in at least a three-foot length, directly under the light wires and tie it securely so that it will not slip. If light wires cross the lead under the cable, wood cable armor, three feet long, should be placed around the cable and be securely tied. I have heard telephone maintenance men say that they "consider it unnecessary to waste cable armor, where light wires pass *under* cable, because light wires, becoming slack, get farther away from the cable," but you will find that in the majority of cases, the light company's lineman doesn't have the telephone viewpoint and pulls slack in his drops—very often—right up against the cable.

In all cases where tree limbs rub against cables, first try to get permission and trim the limb; if this cannot be done, then place galvanized metal tree guard of the proper size. This comes in two-foot lengths and completely envelops the cable. Tie securely at each end and then place rings at regular distances, tying the rings so they cannot be pushed along by the limb.

In the case of cable sleeves down, we recommend old cable sheath, as an added protection to the sleeve and make a served tie with No. 12 annealed copper wire. Use old 25 or 50-pair cable sheath, cut in 20-inch lengths. Then with a cable saw split the cable. One of these lead

straps is placed around the sleeve near each end and both ends hooked over the messenger strand. The outside, or convex surface, is placed next to the sleeve, which leaves the inside, or concave surface, in which to place the tie wire.

The annealed wire is then put around the cable and messenger about four times. Then the lead strap and wire are pressed together between the cable and the messenger and a served tie made by passing the wire around the whole tie *between* the cable and the messenger and twisting the ends together. When cable sleeves are tied this way we believe the trouble caused by them giving way is over.

Where a cable is bearing hard against a foreign pole, the permanent way to fix it is to put on a one-bolt messenger suspension clamp. Wood butt-blocks can be used, but if the cable bears hard against the pole, the messenger will saw into the butt-block in a month's time—and then the cable sheath breaks.

Aerial Cable Maintenance.

The most important small item about aerial cable maintenance is keeping the cable rings properly spaced. One ring off, or slipped along the messenger, will eventually cause cable trouble; and then you have a lot of subscribers out of service, when, by systematic inspection and minor repairs, this could have been avoided. We are not measuring up to our job unless we make every effort to give our subscribers first-class service. Incidentally, the man who is wideawake and keeps down the maintenance costs, by following a system like the one proposed, is the one who will get a raise in salary from time to time, and I am sure we can all use the money.

Referring again to the railroad comparison in which we called the pole line, cable and line wires the track, we have side-tracks also in the form of drop-wires, which must be maintained, if we are to keep the communication trains from going in the ditch.

I think the average telephone man, in his anxiety to gain a subscriber, does himself and the company more harm by stringing a drop wire through trees than is ever gained by the revenue from another telephone. A drop wire has an average life of six or seven years if properly supported and free from contact with trees or other obstructions, and in nine cases out of ten it can be so installed.

There are cases where it looks impossible to get a clearance, but I have found that the subscriber will permit us to trim a tree, or trees, if the matter is properly explained to him. Where the subscriber is obstinate and will not listen to reason, it is better to not install the telephone, but very few people of this kind are encountered.

Where you trim a tree to clear a drop—we'll say two feet—you will avoid future trouble, as well as get more life out of that drop, by using drop-wire wood armor. Then high winds will not damage the wire by swaying limbs and the next year, when the tree's growth comes in contact with the wire, it is protected and that subscriber's service is not impaired. If this protection is not placed it means you will have to trim that tree every year. This is a loss of time which can be avoided—and time saved is money made, you know.

Another important item, which is often not given the attention it should have, is lightning and high tension current protection. If anyone else has occasion to work in your protected terminals, it is well to inspect them occasionally, for you will generally find some carbons left out.

Whenever you have occasion to open a protected terminal, inspect each working pair and see if carbons are in place, as well as fuses, and also make sure the terminal is properly grounded.

We recently had a good example in Waco of what this protection is worth. A 16-pair protected terminal was struck by lightning and every fuse in it was blown to pieces, as well as nine pairs of fuses in subscribers' station protectors, and yet the cable was not damaged in the least. Had any carbons been left out, or the ground wire broken, we would probably have had a 400-pair cable punctured in a great many places.

I have heard it said, that "this kind of talk sounds good, but a telephone manager in a one-man exchange hasn't time to inspect and repair his plant if he keeps up his traffic and commercial work." The trouble with most of this type of men is that they lack *system* in handling their work.

Can't you see that by using *system* in inspection and repair work you are going to greatly reduce the chances of trouble—and if you do this you save yourself time in clearing it, as well as make yourselves strong with your subscribers, because you give them a better service?

Incidentally, this also makes you strong with the company, and when there is a bigger and better job the boss generally knows who is best qualified to fill the position. Don't kid yourself into believing that he does not know when you are slighting your work, or that you are not doing all of which you are capable. If he were not able to judge these things he would not now be an executive, but would be "skinning poles" and stringing wire if he stayed in the telephone business.

Again referring to the railroad comparison, they maintain their main line and side-tracks, but you will notice also that the successful railway pays considerable attention to the maintenance of its depots or stations. How much business would they do over good tracks if they did not maintain good facilities at the stations for the use of the public?

Maintenance of Substations.

It is the same way in the telephone business. We may have a first-class cable and wire plant, but if we do not maintain our substations properly, a lot of bad service can result. The only way to maintain them properly is to inspect them once or twice per year, making all minor repairs and cleaning up the instruments.

As an example, I will mention the result of an inspection made in one of our plants during the month of June. There was a total of 83 substations inspected; 54 were found O. K. and 29 had defects, such as loose screws, switch-hooks loose, broken mouthpieces and receiver shells, bad line and receiver cords, worn-out felt bases so the desk stand scratched the desk, loose bell adjustments, etc.

No reports of trouble had been received from the stations inspected, yet the figures show that about 35 per cent of these subscribers had minor defects that would soon have caused trouble reports. Incidentally, these 83 subscribers were mighty well pleased to note our efforts to avoid interruption to their service and they, no doubt, will show their appreciation in a substantial way when we need them.

Regular, systematic maintenance is necessary to success in this business. The first essential to success is *service*.

There are three important elements to be considered in rendering service, *quality* of work performed, *quantity* of work done and *conduct* in doing the work. *Good* service brings *satisfaction;* the telephone man who gives satisfaction gains the *confidence* of his subscribers.

Service — Satisfaction — Confidence — a good three-word motto for every telephone employe.

THE BUSINESS IN WHICH YOU ARE ENGAGED.

The business of making a man should lead you to rejoice if you find that your intellectual and moral powers are growing.

Ask yourself whether you can think more clearly, whether you can see further, whether your powers respond to your will more quickly than a month ago or a year ago. Are you larger in your views? Are you becoming more proficient in the use of your mind? Has your mind been going through the process that you go through on the football field and the hockey court and in the gymnasium?

That is the business in which you are engaged, in making stronger and more supple the muscles of your mind and your moral nature. That must never be forgotten as necessary for the greater power.—Elihu Root.

Hoover Opposes More Radio Control

Secretary of Commerce Withdraws Support from Legislation for Full Regulation of Radio—Holds It Inadvisable at Pioneer Stage of Industry—Has No Fear of Monopoly but Government Control Over Ether Should Continue

Secretary of Commerce Hoover has withdrawn his support from legislation pending in Congress for full federal regulation of the radio.

In a letter December 4 to Chairman Wallace H. White of the house merchant marine committee Mr. Hoover suggested that at the present time Congress should only amend the present statutes giving the commerce department a decree of control over wireless communication.

Mr. Hoover contended that development of the industry would be aided by withholding restrictions while it was still in the pioneer stage, and he was particularly opposed to giving the Department of Commerce any judicial powers under which it would be called upon to determine whether a monopoly existed.

With the cooperation of the Department of Commerce, Chairman White worked on radio legislation during the last session and a bill is pending on the House calendar. Secretary Hoover, however, believes the rapid changes in the development of radio communication during the last 12 months, and the certainty of new problems arising, make enactment of such legislation inadvisable until further opportunity has been given to study the many questions involved.

The only suggestion for additional legislation made by Secretary Hoover was that an amendment be made to Section 1 of the licensing act approved August 13, 1912, which would make more definite the jurisdiction of the Commerce Department over the operations of transmitting stations. The suggested amendment reads:

"The wave length of every radio transmitting station for which a license is now required by law, its power, emitted wave, the character of its apparatus, and the time of transmission, shall be fixed by the Secretary of Commerce as in his judgment and discretion he shall deem expedient, and may be changed or modified from time to time in his discretion."

Secretary Hoover's Letter.

In his letter Secretary Hoover said:

"My dear Mr. White:

I am enclosing herewith a suggestion of a very short bill clarifying the powers of this department as to radio regulation as to interference.

It does not pretend to confer complete regulatory authority, nor does it cover many matters which must sooner or later receive legislative attention. It is intended only to enable the department to retain firm control of a situation which is very rapidly changing, in which there are some elements of danger. If such a bill is passed, it will give time for more consideration of the whole subject.

We have long agreed that this industry will ultimately require exhaustive legislation, and you have given a vast amount of valuable time, care and study to the subject, not only as manifested by the bills which you have introduced, but by your cooperation in the annual radio conferences we have held. I have, of course, been in full sympathy with your efforts.

I feel, however, that the new developments in the art during the last 12 months has taken such a departure as to require somewhat further time for ascertaining its ultimate result to the public before we can adequately determine the proper course of legislation. There is a probability that by the end of that time, we may require wholly new legislative provisions.

Sees No Monopoly in Radio.

"The short bill proposed will reinforce the fundamental situation so that no public damage can result from delay, whereas much public advantage might result from a further clarity of our knowledge as to the application of this new system of communication. As you are aware, there is no monopoly in the radio world at the present time, there being more than 500 broadcasting stations, of which not more than four are the property of any one institution.

With only 57 wave lengths and 500 stations—rapidly increasing—we are today forced to certain duplications of waves and to the division of time between stations. If there were enough wave lengths for all, the matter would be much simpler. Any attempt to give preference among stations in the allotment of wave lengths on the basis of quality of programs raises the question of censorship, the implications of which I cannot at present accept.

Beyond this, three major things have developed during the last 12 months. The first is the interconnection of stations by which a single voice may be broadcast from all parts of the United States. This interconnection has been most successfully carried out by the use of the wire systems between broadcasting stations, but other methods of interconnection are in use and process of development. It is difficult to see as yet what the public implications of interconnection will be.

During the past year there have been discoveries in the use of higher power, and, therefore, larger areas of broadcasting, which may result in a single station being able to cover a large portion, if not all, of the country. This raises questions of the rights of local stations and the rights of local listeners.

Still another development has been the fact that it has been found possible by indirect advertising to turn broadcasting to highly profitable use. If this were misused, we would be confronted with the fact that service more advantageous to the listeners would be crowded out for advertising purposes.

Discusses Limitation Question.

"Because of this situation there is growing up a demand for the limitation of the number of stations in a given area, and that such a limitation should be based on the service needs of the community, just as public untilities are generally limited by the rule of public convenience and necessity. Again this enters a dangerous field of recognizing monopoly and implied censorship.

On the other hand, we may be in a rush to broadcasting which may in time die down and the number of stations may decrease. Alternatively, improvement in the art may increase the number of available wave lengths and no priorities need then be contemplated.

These are not all of the shifts in progress, and we may have to come to the conclusion that many station owners must be considered as having abandoned the field of private enterprise and entered that of public service. In view of these changes, we may have to reconsider the regulation of the whole are from the point of view of the listener.

The public interest of radio broadcasting is rapidly widening. Entertainment and amusement have ceased to be its principal purposes. The public, especially our people on farms and in isolated communities, are coming to rely on it for information necessary to the conduct of their daily affairs. It is rapidly becoming a necessity, and they rightly feel that, since the public medium of the ether is used to reach them, that they have a direct and justifiable interest in the manner in which it is conducted.

Says Congress Must Fix Regulation.

"From all of this it seems to me that there is a tendency which may require an entirely different basis in character, theory and extent of legislation than we have contemplated in the past.

The basis of regulation and the fundamental policies to be followed must be finally declared by Congress, not left to an administrative officer. Hitherto, we have conceived the problem to be one of interference, but there is now opening before us a whole vista of difficult problems. The development of the art is such that

the whole situation is changing rapidly, and the opinion of today on the solution for a given difficulty is worthless tomorrow.

I hope that another year's experience will show what direction of legislative course must be pursued. Meantime I feel that we would be actual gainers by allowing the industry to progress naturally and unhampered, except by the maintenance of a firm principle—of government control of the ether and the elimination of interference so far as it is possible.

The suggestion which I enclose is necessary under whatever regulatory theory may develop. It merely affirms the authority now exercised by the department over wave lengths, power, apparatus and time of operation. It is in the nature of emergency legislation urgently needed to preserve the situation in the public interest until a final and complete legislative policy can be adopted. It contains the provision reserving control by the federal government over the ether."

As a result of the position taken by Secretary Hoover, it is considered doubtful that there will be any important legislation dealing with the radio industry at the short session of Congress.

Carolinas Association Organized

Representatives of Telephone Companies from the Two Carolinas Organize the Carolinas Telephone Association at Convention Held Last Week in Charlotte, N. C.—Plan of Organization and Proceedings of Meeting

The Carolinas Telephone Association, composed of telephone companies in the two Carolinas was formed as a result of the two-day convention at Hotel Charlotte, Charlotte, N. C., Wednesday and Thursday of last week, December 3 and 4.

Plan of Organization.

The plan of organization adopted at the second day's gathering provides for a president and secretary-treasurer for the two-state organization, and a vice-president elected from each of the states to act as presiding officer when the divisions of the two states meet together. The board of directors for the association is to consist of four directors from each state.

Following out this plan of organization, the following officers were elected by the convention:

President, C. P. McCluer, general manager, Carolina Telephone & Telegraph Co., Tarboro, N. C.

Vice-President for North Carolina, J. F. Hayden, general manager, North State Telephone Co., High Point, N. C.

Vice-President for South Carolina, J. W. Sproles, general manager, Greenwood Telephone Co., Greenwood, S. C.

Secretary-Treasurer, J. R. Porter, general manager, Home Telephone & Telegraph Co., Henderson, N. C.

The registration during the first day of the convention totaled 72. This number was raised to 87 the following day.

Clarence Kuester, secretary of the Charlotte Chamber of Commerce, in his address of welcome, urged the members of the Independent companies to cooperate. He also told them that they must "read, study and think," if they were to succeed.

F. B. MacKinnon, of Chicago, president of the United States Independent Telephone Association, was one of the principal speakers at the opening session of the convention, Wednesday morning.

In pointing out the need for the organization of an association in that section of the country, Mr. MacKinnon stressed the fact that "no business can live for itself alone" and that "the business that is not with us is against us."

"There are in North Carolina," said he, "233 Independent organizations and 81 Bell exchanges. In South Carolina there are 55 Bell exchanges and 115 Independent companies. The Bell company has a unity that we are lacking unless we organize. Therefore, there should be in North and South Carolina and in Virginia some central organization that would take up the problems which confront us as a body, so that there could be concerted action in dealing with them."

The necessity of the two groups in the telephone world was pointed out by the speaker. It was shown that to keep up the spirit of rivalry and the spirit of competition where it would be beneficial to both the Bell and the Independent companies is essential. Mr. MacKinnon spoke of the cordial relations which have existed in recent years between the Bell and the Independent companies.

The future of the telephone industry in the two states was taken up. Mr. MacKinnon stated that there was a doubling in the number of telephones installed every two years and that the problem confronting the telephone men of today is, how can the future of the business be cared for. He said this would be especially true in the Piedmont section, due to the growth which was to be expected.

In concluding his address, Mr. MacKinnon showed that proper management is the panacea for existing ills.

Following Mr. MacKinnon's address, a number of the prominent telephone men present were called on for short talks.

C. R. McCluer, of Tarboro, president of the Carolina Telephone & Telegraph Co.; R. B. Babington, of Gastonia, president of the Piedmont Telephone & Telegraph Co.; R. H. Wright, of Durham, president of the Interstate Telephone Co., all made brief addresses during the forenoon session and discussed telephone service from various angles.

At the Wednesday afternoon session, which began at 2:30 o'clock, Frank W. Shealy, chairman of the Railroad Commission of South Carolina, was one of the speakers. J. W. Coffey, of Indianapolis, Ind., was another and H. C. Tucker, manager of the Sumter Telephone Co., of Sumter, S. C., was another.

Mr. Shealy discussed the relationship between the public and the telephone company and the function of the state in regulating telephone service. Mr. Coffey discussed "Telephone Auditing" and Mr. Tucker's subject was "Telephone vs. Radio." Topics for general discussion during the afternoon session were "Telephone Rates," "Depreciation," and "Service."

Morgan B. Speir, general manager in the Carolinas for the Southern Bell Telephone & Telegraph Co. was a speaker on the afternoon program, talking upon the relationship of the Bell system to Independent companies. He expressed the desire of his company to cooperate with Independent companies and with associations of telephone companies to meet the modern demand for telephone service still more efficiently. He pictured the increased demand for telephone service as business and industry more and more come to depend on the telephone for prompt dispatch of business instead of depending so largely upon correspondence.

Among the numbers on the program at the Thursday morning session was a discussion by James N. Cox, general manager of the Gainesboro Telephone Co., Cookeville, Tenn., on the subject, "Standard Charges for Telephone Service," and a talk by E. L. Barnes, president of the Rock Hill Telephone Co., Rock Hill, S. C., on "Association Work and Benefits to Be Derived Therefrom."

The entertainment feature of the convention was a luncheon and Pioneers' initiation ceremony which commenced at 1 o'clock, the initiation being in charge of J. K. Johnston, of Indianapolis, Ind., and H. E. Bradley, of Harrisburg, Pa.

At the afternoon session election re-

(*Please turn to page* 17.)

Operator—An Intensely Human Being

Unjust Criticism Heaped Upon Operator Due to Public's Lack of Information Regarding Her Work—Time Has Come to Let Subscribers on the Inside and to Educate Them—Result Will Be Good Will Between Public and Operators

By Miss Margaret Grace,

Traffic Chief, Fort Dodge Telephone Co., Fort Dodge, Iowa

"The hand that rocks the cradle—"
Has been sung in every land,
The hand that clips the coupons
Is another handy hand;
The hand that holds four aces
You may play for all its worth;
But—the hand that plugs the switchboard
Is the hand that runs the earth.
—*The Voice.*

Much has been said "pro" and "con" concerning the telephone operator, the most intensely human individual on this great, big, green footstool—the earth. The "con" side leads in popular votes, for where there is one champion for this self-sacrificing, much maligned person, there are three nagging and blaming her, for some of the most unique and unreasonable things to be conceived by the human mind.

The writer happened to be in a small town of about 500 souls the other evening, where the telephone office was situated up over one of the general store buildings. The little town was all bedecked in holiday attire, with flags and banners floating, for the American Legion was staging a carnival and "pavement" dance to celebrate the event of the completion of three blocks of new paving by that progressive little Iowa town.

Standing among the spectators, I happened to glance up at the window and saw the switchboard in the telephone office and the faithful telephone operator pushing the plugs. Her pleasant voice saying, "Number, please?" carried to me down below on the street, as the band was playing and everyone else had closed his place of business and she alone was working at her post. Something about the situation, common as it was and is in my knowledge of the telephone operators' field of duty, struck me so poignantly, so forcibly as being most unreasonable and unfair. I thought of the unjust criticism of that faithful girl.

A great deal of that unjust criticism of this faithful servant of the people is from an uneducated and ignorant public. By this statement I mean a public, through no fault on its part, ignorant as to the use of the telephone, for the reason that the telephone companies have always, in the past, kept their business so private, so shut off from the public eye. However, some of the more progressive companies are beginning to see and realize the value of the slogan, "Educate the public," and this must be done for harmony and friendly feelings.

There is no other profession or line of business where individuals are engaged in carrying on their work so secretly as in the operating rooms of most telephone companies, wholly shut off from the public view. So, it is not to be wondered at that the public does not understand the methods of the system.

In the bank the patrons are told kindly how to endorse the check, just where and how to sign. In every other place of business they can see the operations, or transactions are all told. Have they, in the past, been told or enlightened in regard to the intricacies of the use of the telephone? No. Then they are not to blame for their ignorance with regard to the operation of a telephone exchange.

Miss Grace Urges Education of Public to an Appreciation of the Operator As an Intensely Human Being.

Some wrong impressions have been gained by patrons by going into the smaller exchanges (which serve as meeting places for a few) where the switchboards and public booth are all in one room, to find operators reading, eating candy, or embroidering. Never having been in the larger operating rooms where all such things are tabooed, these patrons have gained a wrong impression of the telephone business in general. Moreover, these practices are fast being forbidden, even in the small offices.

The telephone operator has made her entrance into the movies. We are now having a series of pictures of "The Telephone Girl," with a popular showing and following over the country. Here again we find the operator shown as a silly-headed, overdressed girl, once in a while doing something clever, but always chewing gum and conducting herself in a most flippant manner. Is it strange, then, that the already misunderstanding public draws his or her conclusions?

"It pays to advertise" is a splendid slogan and nowhere else is this more true than in the telephone industry. The telephone companies must help the public; they must train their patrons in the proper use of the telephone, and many of them are already starting a campaign along these lines. The American people are noted for their loyal and independent spirit and nowhere else is this more pronounced than in our average, well-trained telephone girls.

The American people, on the other hand, are often accused of being rude and discourteous, and especially is this found to be true in their use of the telephone.

The professional man comes to his office in the morning at about nine "bells." Perhaps his coffee has not been as good as it might have been. The natural result is that Miss Telephone Operator, who has reported for duty at six bells that morning, comes in for "the wrath to come."

The tired business man returns from a calm and serene autumn afternoon, spent on the beautiful greensward of the golf links. His luck has been "not so good." Little Miss Telephone Operator (longing to be out this beautiful day) is the first and most convenient person to "cuss" for a wrong number (perhaps not always her fault).

Mrs. Snob, who is at the top of the social ladder and who is, supposedly, cultured and refined, can't get a certain number. She has been calling it all morning—and she positively knows Mrs. Gadabout is always at home at this particular hour in the morning. (Mrs. Gadabout took a notion to take a drive in the nipping air this particular morning.) Mrs. Snob angrily denounces "that lazy Central" for not even ringing the number, and then laments, "But what can one expect of a mere telephone girl?"

The patient little Miss Telephone Girl quietly smiles to herself (lest that smile be caught by an ever-observant supervisor who would demand an explanation) and

considers the source, knowing that while she does not occupy the social position of Mrs. Snob, she has and retains the higher position of being a "lady."

But not all telephone patrons are like these. There are many who are considerate, realizing a little of the problems of the girl at the switchboard.

Mrs. Pleasant Voice sends a kindly note of sincere gratitude with a box of dainty sweets, to the night toll operator who so patiently and with untiring effort completed a call across the continent to a far-away city, being compelled to build up her circuits in all sorts of ways, as the direct circuits were out of order, due to unusual and severe storms.

With the lightning playing over and across the wires, she faithfully stayed on her circuits and with the cracking and smashing in her ears, reached her destination—San Francisco. The result was that two hearts were made happy, as the sick message conveyed the fact that mother had passed the crisis in her serious illness and would live.

Then there is the considerate and exceedingly busy grain man who, with all his nerve-racking work, trying to sell the corn, oats, and wheat while the market is at top-notch prices, thus making for his company and his customer a big margin on the transactions, snatches a few moments of his time to dash off a letter to the telephone company in praise of the exceedingly good service he is receiving.

If the patrons could only realize what a few words of praise mean to a tired and nerve-racked, careworn soul (the soul of the telephone girl), they would not be so sparing of the few kind words spoken in her behalf. It is to the voice traveler of the wires, "the weavers of speech," what an oasis in the desert is to the thirsty and tired traveler.

The writer has sat with her headset on, listening in with the operators—the light flashes—the operator's voice says, "Number, please"; the subscriber's voice, "Colfax 2645." The operator's voice repeats "Colfax 2649" (figures 5 and 9 being so easily confused). The subscriber, trying to carry on a conversation with someone in the room while giving her number, does not hear the operator's wrong repetition, "Yes, please, Colfax 2649" she answers.

Subscriber's voice then says disgustedly, "Oh, Pshaw! Central has given me the wrong number again," and bangs up the receiver in the ear of the innocent and unoffending patron at the other end.

These are only a very few of the things that go to make up the life of a telephone operator. Of course, it is a public utility's business to give good service and the kind of service the public wants and is willing to pay for, but it is not the public's privilege to abuse nor let loose the bit of temper which is displayed at times, like a fireworks display, on the helpless and patient telephone girl.

RUNNING WATER

By Miss Anne Barnes,

Traveling Chief Operator, Iowa Independent Telephone Association, Des Moines, Iowa

Rushing, tumbling, flowing, and gliding, is the water of the Rocky river below my window here. Where is it going that it needs to so continually and insistently hurry on? Is its duty farther on any greater than it is here? Is that soft, chuckling and gurgling its manner of speech?

Just now I notice that it makes a frothy splashing as it comes into contact with the pier and then glides to the edge and slides around and away—where? The eddying snowflakes drop unexpectedly into its midst and soon melt into its service.

And now comes the sun, slipping from behind a snow cloud, casting thousands of lights into the hurrying little waves; but they cannot hold the sunbeams as they do the snowflakes, for now the sun has gone into hiding, taking her sun jewels with her, but the little waves never pause in their hurrying journey. Where? I do not know.

As I lean back in my big easy chair, my thoughts stray away from the river I love to watch so well. I see countless thousands of women in the United States with fingers and thoughts hurrying toward a given goal—*service*.

The very earnestness of these young women inspires additions to their number. And these beginners, like the snowflakes, soon blend into the weaving of a great service pattern.

Somehow, I cannot help but think of the sunlight and shadows, laughter and tears that these weavers of speech are constantly blending into the great service pattern on our telephone loom of wires, which are spread over and under city and hamlet; across rivers and prairies; over mountains and valleys.

If we only knew the sunlight and shadows, laughter and tears that traveled through the cords which we use, we could better understand the value of our service.

MORAL: Stagnant water gathers sickness and death; flowing water represents activity and life.

"The time has come," as the walrus said, "to talk of many things." The time has come for the telephone companies to do a little broadcasting to the public; to let them in on the inside of the high-board fence, which has hitherto been built around all things connected with the business of the company.

Explain a few of the proper ways to use the telephone, a few of the "do's" and a few of the "do nots." The public will welcome it, for it is not their fault that they have not been educated. It will make things easier for both the company and the patrons, each one knowing their part of the transaction. The good will of both the patrons and the operator will increase, and when good will increases, all will be happy.

MORAL: Take the advice of the walrus.

CAROLINAS ASSOCIATION ORGANIZED.

(*Concluded from page* 15.)

ports were made by the various committees and officers elected to complete the organization of the new Carolinas Telephone Association.

Exhibits were presented at the convention by the Stromberg-Carlson Telephone Co., of Rochester, N. Y.; Kellogg Switchboard & Supply Co., Automatic Electric Co., Monarch Telephone Mfg. Co., Reliable Electric Co. and Cook Electric Co., of Chicago; French Battery & Carbon Co., of Madison, Wis., and the Coffey System & Audit Co., of Indianapolis, Ind.

Spain-Africa Cable Provides Inter-Continental Service.

A new submarine telephone cable to connect Algeciras, Spain, with Ceuta, Morocco, has been ordered by the Compania Telefonica Nacional de Espana, the Spanish subsidiary of the International Telephone & Telegraph Corp., which recently took over the operation of the telephone system in Spain.

The connection will be another step in the telephone communication between Spain and Africa, which was officially inaugurated a month ago. At that time King Alfonso of Spain spoke with General Primo de Rivera, President of the Spanish Military Directorate, in Tetuan, Morocco, for eight minutes. Barcelona also was connected with Africa when Colonel Sosthenes Behn, president of the International Telephone & Telegraph Corp., talked with Tetuan.

Practical Radio for Telephone Men

Seventh of a Series of Articles on the Installation, Operation and Maintenance of the Radio in the Home—Discussion of Amplification—Untuned Radio Frequency Amplification; Its Insertion in Circuit and Operation

By Allan C. Forbes,

Member I. R. E.; Associate Member A. I. E. E.

Ever since the first signal was transmitted across the Atlantic Ocean in 1901, radio engineers have been trying to make that signal stable and readable under all conditions and at all times of the day.

The first method tried in the early days was increased power at the transmitting station, for it was then believed that the transmitting of readable commercial signals over great distances was simply a question of being able to get sufficient power into the antenna.

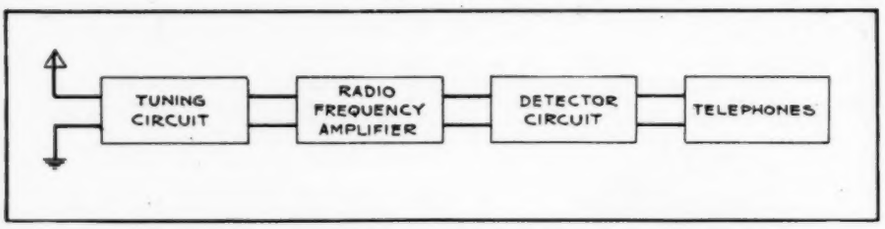


Fig. 1. Schematic Diagram Showing Radio Frequency Amplifier Connected in Circuit.

This method was pursued first because they knew very little about conditions governing the traveling of the wave itself, and secondly because all they had to receive with were crystal detectors, and they had no way of amplifying the signal prior to detecting it or after it was detected.

When it was found that increasing the power of the transmitting station did not solve the problem, engineers turned their efforts towards the amplifying of the signal itself, but achieved no success until the advent of the vacuum tube. Then it was immediately perceived that the solution of the distance problem lay in the amplification of the wave before it was detected or rectified. This lead to the development of what is known as radio frequency amplification.

Another form of amplification that is used with considerable success is audio frequency amplification. This is the amplifying of the received signal after it leaves the detector.

General broadcasting, which occurred in the latter part of 1921, brought an increased demand for radio frequency amplification, because it was seen that it would not only increase the receiving range of a given set but would add volume to the final rectified signal without amplifying the static and tube noises that occur with the single-tube set.

Various methods of amplifying this radio frequency current have been used, the more common being the resistance and transformer coupled types. The resistance coupled type is now obsolete for radio frequency purposes, because of the grid to plate short-circuiting effect that takes place due to the capacity of the tubes, and it is only used on waves over 1,000 meters. When used on this or higher waves it gives good, quiet amplification, but on the ordinary broadcasting wave bands poor results are obtained.

Transformer coupled types are almost entirely used nowadays and include both iron and air core. Most manufacturers prefer some sort of an iron core because it stabilizes the action and smooths off the high resonant peaks. Fig. 1 shows the general scheme of connection.

Experience has shown that one stage of amplification hardly pays to bother with, and the difference between two and three stages is so small, considering the amount of additional apparatus required that nearly all engineers agree that two stages of radio frequency are quite sufficient for ordinary purposes.

Untuned radio frequency has the advantage that, when using two or more stages of amplification, loop reception is possible—and this makes for simplicity in tuning, as only one tuning control (a variable condenser across the loop) is required.

One of the principal disadvantages of untuned radio frequency amplification is the tendency of the amplifying tubes to go into oscillation. There are various methods of controlling this, one of the most common and familiar ways being to insert a potentiometer in the grid return to filament of the first tube.

Another disadvantage of untuned radio frequency is one of manufacturing principally and is the liability of the transformer to have a "peak," which means that greater amplification will be had on the wave length that the "peak" occurs at.

Modern design and careful manufacturing methods have reduced this defect, however, in some types so that fairly even amplification is secured over the entire wave length band for which the transformer is designed, which in most cases is from 225 to 550 meters.

A good, simple, fairly selective and sensitive long distance set, constructed for use on a loop or antenna and ground, consists of three stages of radio frequency amplification, a detector, and two stages of audio amplification. Fig. 2 shows the set to be used with an antenna and ground. Fig. 3 shows the same set adapted for use with a loop.

When used with an outside antenna and ground a vario coupler with tapped primary is required and this makes two additional tuning controls. When used with a loop only, the variable condenser is required and this with the potentiometer are the only controls needed. Where extreme selectivity is not required, this makes an ideal set and will give excellent results with a minimum of tuning controls.

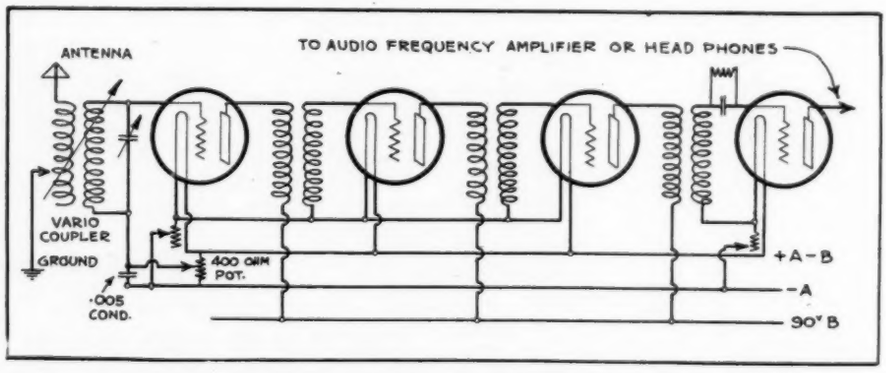


Fig. 2. Schematic Diagram Giving Connections for Three Stages of Untuned Radio Frequency Using Antenna and Ground.

A radio frequency amplifier is not so noisy because the noises due to the tubes and nearby interference are not amplified

by the radio frequency amplifier in the same proportion as the signal; also a set employing this method of amplification tunes sharper than one employing audio frequency. One of the principal drawbacks to the use of audio frequency has been that it detracts from the selectivity of the set and makes it tune considerably broader.

The detector follows the square law—consequently the greater the electromotive force applied to the grid of the detector, the greater will be the variation in the plate circuit, the more efficient the tube, and the greater the volume of signal.

For this reason it is advisable to amplify before detection. An amplification of ten times before detection will give 100 times the response in the head telephones or loudspeaker. For the same reason, a radio frequency amplification of only five times is equal to an audio frequency amplification of 25 times. This square law action is more clearly shown in the following assumption:

Suppose a transmitting station is radiating 10 amperes in the antenna and this gives a signal (with detector only) audibility of 10. Now if the current in the transmitting antenna is reduced to one ampere, the audibility of the received signal will be reduced to 1/100 of its former value—1/10 of unit audibility.

If two stages of audio frequency amplification are added to the detector and if each stage amplifies 20 times—the total amplification, $20 \times 20 = 400$—then the resulting audibility would be 40 and the signal would be heard.

On the other hand, if two stages of radio frequency amplification preceded the detector and each stage were amplified five times, the total amplification would be $5 \times 5 = 25$, and the audibility of the received signal would be 62.5 after detection and 10,000 plus if two stages of audio frequency amplification are used in addition.

The square law of response results in strong signals being made very strong and weak signals being very weak. In the case of strong static (atmospheric disturbances) with occasional crashes, this frequently results in the drowning out of the somewhat weaker signal.

On the other hand, when either the autodyne or heterodyne method of reception is employed, the current in the head telephones is proportional to the current in the antenna. Hence the response is greater for a very weak signal than for a loud one. Thus a decided and more favorable ratio of signal to static strength is obtained by the use of the latter method of reception.

The radio frequency amplifier amplifies the voltage variations impressed into the grid circuit from the secondary circuit of the receiver.

The voltage across the secondary circuit condenser is applied between the grid and filament of the first tube. This alternating voltage varies at a radio frequency. These voltage variations produce corresponding current variations in the plate circuit of the first tube. Most of the voltage amplification takes place in the tube and some in the transformer used between successive stages.

The primary winding of a one-to-three ratio transformer is included with the plate circuit of the first tube. The variations in the current passing through the primary winding of the transformer induce a varying voltage in the secondary winding. These variations in voltage are impressed in the grid circuit of the second tube, causing amplified current variations in the plate circuit of the tube.

This process is repeated through each stage of radio frequency amplification, and the amplified current variations in the plate current of this last tube are impressed on the grid of the detector tube. They are then rectified and lead into the telephones or the audio-frequency amplifier.

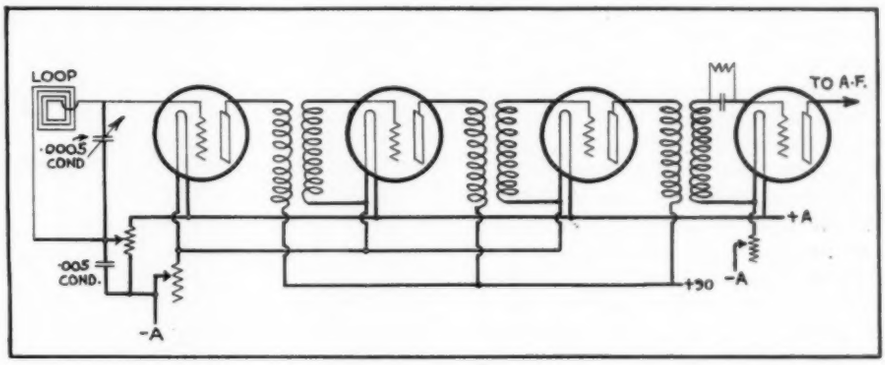


Fig. 3. Schematic Diagram Giving Connections for Three Stages of Untuned Radio Frequency Using Loop.

All sets employing radio frequency amplification should be thoroughly shielded. By this is meant that the cabinet housing the tubes and tuning apparatus should be shielded and the cabinet should be divided into six compartments: each compartment shielded from the other and only one stage of radio frequency amplification in a compartment, the detector in another compartment and each stage of audio frequency in a separate compartment. The telephone cords connecting the head set or loud speaker to the set should also be shielded so as to prevent the capacity of the operator's body from disturbing the action of the amplifier.

As mentioned in a previous paragraph the great trouble with a set of this kind is the difficulty of preventing it from oscillating. A careful operator will have very little trouble from this source if a 400-ohm potentiometer is used and the various stages shielded from one another. A tuning unit is not necessary but it would be well to experiment with one and take note of the results obtained when using the tuning unit and when not using it.

Untuned radio frequency amplification is easy to construct, works easily and is extremely simple to operate. It is in fact the easiest set to operate that can be built by the ordinary individual, and for this reason it should be more popular than it has been in the past. Of course, it is not so selective as those sets employing tuned radio frequency, but when cost of apparatus and complication of controls is considered the untuned radio frequency set is a very hard one to beat.

Those of us who live in the more congested districts where we have three or six strong local stations to deal with have more of a problem on our hands than the fellow who lives in the outlying district and has no local station to interfere with him. Our problem is therefore a different one to his. In the former case we must have a set that is very selective in addition to being sensitive. In the latter case all that we require is a good strong amplifier. The set does not have to be ultra-selective.

If your location is such that you can use one of these sets then by all means do so, because what is the use of getting a complicated set—one that is hard to tune—when a set that is easy to tune will accomplish the same results and give complete satisfaction?

Coin-Box Telephones to Be Used in Warsaw, Poland.

L. J. Cochrane, clerk to the trade commissioner in the office of the acting commercial attache of the United States government at Warsaw, Poland, says in his weekly report of November 1:

"Coin box telephones are shortly to be installed at various points in Warsaw. The coin to be used is the 20 groshe piece.

This installation has been under consideration for some time but has been delayed by the fact that the 5 groshe coins, though of a different material, are of the same size as the 20 groshe coins and could easily be used in place of the latter.

This difficulty has been obviated by introducing a magnetic arrangement, so constructed that only the 20 groshe pieces can be used in operating the telephone."

Sundry Snapshots Along the Trail

Observations and Comments, Pertinent and Otherwise, On the Sunshine and Shadows of Telephone Work

By Well Clay

If words which run from my pen could tell
The feelings which in my heart doth dwell,
Then were it easy, good friends of mine,
To express my sentiments with written line.
But lips oft are dumb though the heart rejoice,
The eyes may speak when fails the voice,
And usually all we can think to say
Is "what lovely weather we're having today."

It is often hard to put into the written word the things which drift through our minds and in cases like this we, as individuals, can merely say nothing. But take the case of a commission who have to pass on the reasonableness of telephone rates—it is much more difficult, because they must end up by making some declaration.

I have often wondered how a commission, having several different applications before it from companies having widely diverging styles of plants and customs of management, could make even an approximately intelligent decision in the several cases.

One case is from a company having many miles of rural lines, in a generally dilapidated condition, and a low ebb in the treasury, and another being a big company with its attendant unwieldiness in the matter of mobility of its labor and consequently high costs per unit of everything.

Then, again, there might be a smaller company with better lines and under efficient management, which, having made a success of the business and accumulated a good tangible surplus, might have its rates, though no higher than the old rates of the other applicants, come up for criticism from an action begun by some of its patrons who thought it was making too much money.

"The Debatable Point Is Whether a Commission Can Allow One Company to Earn More Net Than Another, Thereby Recognizing Thrift, Ability and Careful Management."

All three angles are possible in a day's business before a telephone commission. Solomon would have his work cut out for him, in my opinion.

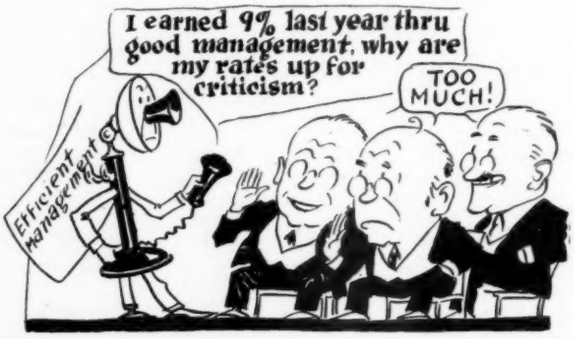
Will the average commission enjoy the job of telling the successful telephone management that its rates are too high, because it has been able to earn a little more than its neighboring company which, perhaps, can only earn a 4 or 5 per cent on its investment net?

And then, after settling this case, will it feel justified in allowing a much larger rate increase to a large operating company? The latter can not get its work done as cheaply as the smaller company, by reason of the fact that, whereas the smaller company has a small, easily-moved force of men, who can do anything from building a pole line to splicing cable and repairing trouble on the board, as against the fact that the large company has only specialists, so to speak, in each department who do not double in anything else. This naturally makes even the smallest undertaking a costly affair for the large company, for not only must costly records be made and kept, and blue-prints prepared, but the transportation of men long distances for trivial causes, seemingly, makes costs mount up tremendously.

Every dollar piled onto the capital account must earn its share of the dividends or else there will be no dividends; also every dollar so spent must remain fixed in the capital account during the entire life of the company, to win or lose with the rest of the dollars.

It stands to reason that the costs of a large company must be greater than those of a smaller unit. The small car can turn around in less space than the big ones, but the big ones are better in some other lines. One who would say that car costs per mile for both large and small machines should be the same would be wide of the facts. This may be equally true of the large and small telephone companies.

The only debatable point seems to be whether a commission can allow one company to earn more net than another, thereby recognizing thrift, ability and careful management, and allowing a laudable ambition to excel to be rewarded. I think the commissions are inclined to foster the idea as far as they are able. It only rests on the question of what is a fair rate of return.



"A Company Which Under Efficient Management Had Accumulated a Good Surplus Might Have Had Its Rates, Though No Higher Than the Old Rates of Other Applicants, Come Up for Criticism."

If the rules governing the decisions in such cases are specific as to amount, as they are in some states, then it becomes a question as to whether it pays to try to exceed a reasonable average in excellence of service.

APHORISM: Must the telephone race be a dead heat?

Employes of Northwestern Bell Lead in Securities Sales.

The Bell Telephone Securities Corp. reports that for the first nine months of the year the Northwestern Bell company led in percentage of employes who had made sales during the period. This was accomplished largely through the plant, traffic and engineering departments.

In the first ten months of the year 4,162 persons in Northwestern territory were interested, and to them a total of 17,979 shares were sold. The greater majority of them paid cash. This is part of the customer ownership plans that the parent Bell company has been popularizing the country over.

Prices in the Metal Markets.

New York, December 8.—Copper—Steady; electrolytic, spot and futures, 14⅛@14¼c. Tin—Easy; spot and futures, $55.00. Iron—Irregular; No. 1 northern, $23.50@25.00; No. 2 northern, $22.50@23.50; No. 2 southern, $19.50@20.00. Lead—Steady; spot, 8.65@9.00c. Zinc—Steady; East St. Louis spot, 6.97@7.00.

Radio Talk on Telephone Business

Interesting Address on Telephone Business, by C. B. Cheadle, Broadcasted from Joliet, Ill., Contains Many Thoughts Adaptable for Use by Other Telephone Men in Their Educational and Publicity Efforts

Recently C. B. Cheadle, secretary of the Illinois Central Telephone Co., Joliet, Ill., delivered a radio talk from the local broadcasting station WWAE. That the talk was well received was evident from many telegrams of congratulation received by Mr. Cheadle from various sections.

After prefacing the telephone part of his talk with some remarks about the city of Joliet, its industries, organizations, schools, and other public activities, Mr. Cheadle said:

"I am going to tell you something about the telephone business. I wonder if you ever stopped to think about this most wonderful invention of all times? Did you ever stop to consider that from the beginning of time, when man first inhabited the earth, his biggest problem has been that of communication of ideas?

The best intellect of all time has been devoted to solving the problem of elimination of time and distance in the communication of intelligence. I need not tell you of the various steps of progress that have been made. It is sufficient to say that not until 1876—a time in which many of us were then living—was the telephone, which has solved this greatest and oldest of all human problems, invented.

At the great Centennial Exposition held in Philadelphia, commemorating the 100th anniversary of the Declaration of Independence, the first telephone was placed on public exhibition.

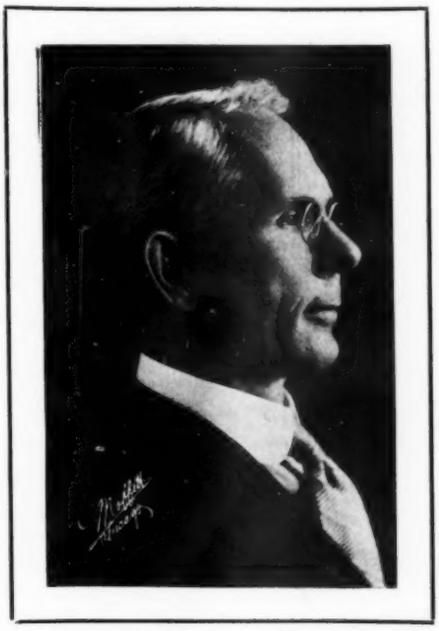
Alexander Graham Bell had charge of a small exhibit in an obscure corner of one of the departments of that great exposition. Late on a Sunday afternoon a committee of judges, hot and weary, stopped at the booth where the telephone was on exhibition. They regarded it as a curious toy and were passing on—they did not dream of its human possibilities.

Just then Don Pedro, the great emperor of Brazil with his queen and retinue entered the room. The emperor immediately recognized Mr. Bell as one who had aided his daughter who was afflicted with defective hearing. He grasped Mr. Bell by the hand and expressed interest in the 'curious toy.'

Mr. Bell asked him to hold one part to his ear while an assistant in a distant room spoke into a transmitter. The emperor dropped the instrument in amazement and exclaimed "My God, it talks!"—and it has been talking ever since. It talked to 50,000,000 people today; it will talk to 50,000,000 tomorrow.

From that time on throughout the Exposition the telephone was the center of attraction. Thousands of people became interested in it. It marked the beginning of the development of the most important industry of all time.

Now let us consider briefly just what this great industry means. First of all, let me say to you, business men, that your telephone company cannot continue to furnish efficient service unless it shall prosper; and let me say to you, telephone men, that your company cannot prosper permanently unless you serve adequately and efficiently.



"A Well-Constructed and Efficiently-Operated Telephone Plant," Said Mr. Cheadle to His Radio Audience, "Can Do More to Boost a Town Than Anything Else."

You see, the interest of the citizen and the interest of the company are one—that is a big fact to remember. A broken-down telephone plant can do more to ruin a town than anything else; likewise, a well-constructed and efficiently-operated telephone plant can do more to boost a town than anything else.

Another fact that I want you to remember is that the telephone company, the light company and other utility companies are *your* companies. 27,000,000 depositors in 30,000 American banks have invested two billions of dollars in utility securities. Much of this represents the savings of widows and orphans, so just remember that when you strike at the public utilities in your community, you are striking at the savings of millions of honest people who cannot afford to suffer material loss. More than 12 billions of dollars are represented in the cost of electric light, power, gas and telephone businesses alone.

Statistics show that out of every dollar that you pay for telephone service, more than one-half is paid out for wages, operation and maintenance, 17 cents for materials and automobile expenses, 8½ cents for dividends, 6 cents for interest, 7 cents for taxes, 5½ cents for miscellaneous expenses, and less than 5 per cent is left for contingencies.

More than 40,000,000 miles of wire are used in this country alone for the telephone business—enough to reach to the moon more than 100 times. 25 billion conversations were transmitted over those wires last year, which is equal to one person talking all the time for 140,000 years. The amount invested in the telephone business would build 440,000 homes costing $5,000 each, equal in number to those in the 50 largest cities in Illinois outside of Chicago. Its revenues of $700,000,000 would support 380,000 families at $1,800 per year.

It is supposed that the pyramids of Egypt were built by slaves. It would take three billions of these slaves each year to do the work that is now done by utility companies.

Did you ever stop to think that a conversation carried on from New York to San Francisco uses 740 tons of copper, worth nearly one-half million dollars, and your voice travels so fast through all of this mass that is requires only 1/50th part of a second to travel the entire distance? Can you think of anything more wonderful than that?

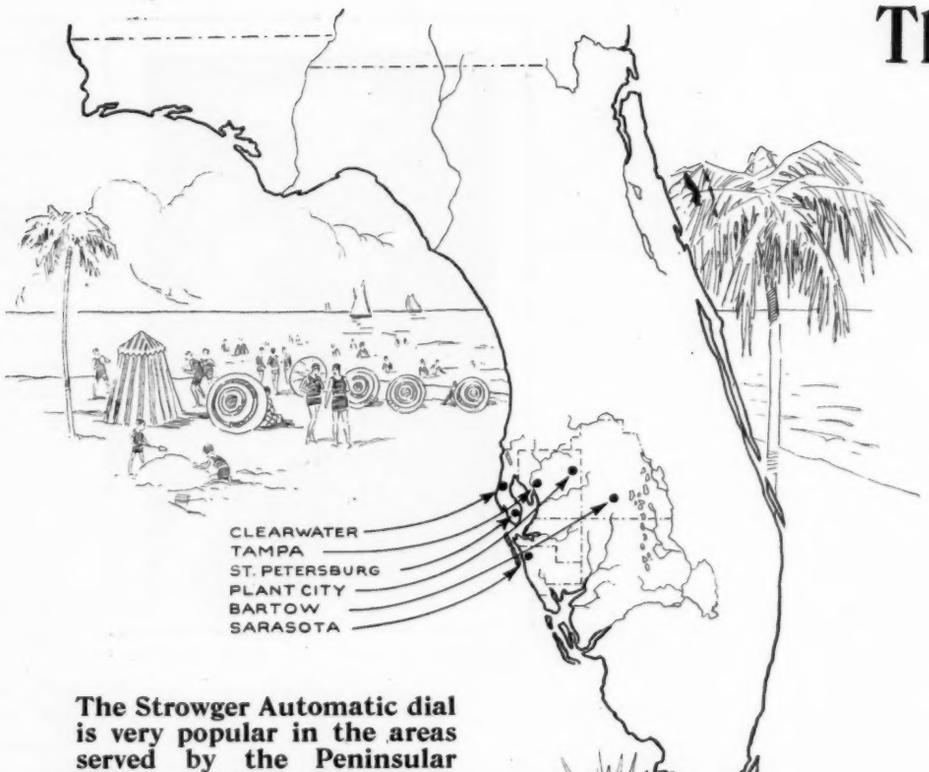
In Japan, the government owns and operates the telephone lines. I have before me a copy of the World's Work from which I read:

'It is interesting to learn that recently 350 persons who applied for telephones in Japan in 1907 have just been granted them by the government-owned corporation. Five of the 350 applicants are not to be found at the addresses they gave at the time of application, and there is some speculation as to whether they are still alive.'

How would you like that condition to exist in this country? It is needless to say there are not many telephones in Japan. In the United States there are 15,000,000 telephones. This is 65 per cent of all that there are in the world.

For just a moment, I want to talk to you about the financial phase of the business. Some people have said that because the business is a public utility, and, there-

They



The Strowger Automatic dial is very popular in the areas served by the Peninsular Telephone Co. This company operates in Tampa and in other centers throughout the counties of Hillsborough, Pinellas, Manatee, Polk and Sarasota in Florida.

Strowger Automatic exchanges in the system are indicated above.

Please tell the Advertiser you saw his Advertisement in TELEPHONY.

erted One Office—Then Nine Others

ny manufactured product sold n be judged by the number of orders" it brings. Some men the same make of automobile r year. Some industrial con- ild up fleets of trucks, all of e.

ale of telephone equipment, as any other product, "repeat mean satisfied customers.

The Peninsular Telephone Co. their first Strowger Automatic nt to replace the old manual Tampa, Fla. Since then four offices have been added.

her exchanges of this company nverted in 1922—Bartow, Sara- ant City and Clearwater.

t to be cut over will be St. urg. Equipment for 3600 lines eing manufactured.

The Peninsular Telephone Co. has an interesting history and is recognized as one of the most successful telephone organizations in the country. It is only natural that they should favor Strowger Automatic.

Our sales records show many other "repeat orders." We believe they tell our story as nothing else can.

Write for this Interesting Booklet

It is completely illustrated and describes Strowger Automatic equipment, its history and its application to exchanges of all sizes.

Automatic Electric Company

Factory and General Offices: Chicago, Illinois

ASSOCIATED COMPANIES

International Telephone Sales and Engineering Corporation ..... New York
International Automatic Telephone Company, Ltd ..... London
Automatic Telephone Mfg. Co., Ltd ..... Liverpool
Compagnie Francaise pour l'Exploitation des Procédés Thomson-Houston ..... Paris
Automatic Telephones, Ltd. ..... Sydney

fore, a safe business, the investor should be satisfied with a small return, but the fact of the matter is—money is a commodity just the same as corn, and no one can buy it without paying the current market price.

If something else is offered paying a higher rate of return that is equally secure, the telephone company cannot get the money. $250,000,000 will be needed next year to take care of the normal growth of the business in this country. The companies cannot get the money if there is any doubt about the safety of the investment, or a sufficient return on the investment.

Another thing that the people do not think about—the average business man is accustomed to think of a business in which he can invest money and turn his capital over three or four times a year, making a profit each time. In the telephone business, it will take from three to five years to turn the capital over once.

It is the duty of every public man in this country to see to it that those who have invested money in the telephone business get justice and, at the same time, to see to it that the public gets adequate service at a fair price. If you want to make the American government a monumental pickpocket, get it to confiscate the great public utility properties.

Did you ever stop to consider that the telephone business is the biggest business in your town? It has more capital investment than any other business. It is the most important business in your town; nothing else taken out of your community would create such a commotion or be felt so keenly as would the taking out of the telephone service.

It is the best business in your town. It is something of which you may feel justly proud. Are you proud of it? If not, why not? It serves all the people of your community in their social, domestic and business life—it is a necessary factor. It probably pays more taxes than any other business in your town. It has an active interest in every movement for public benefits.

It offers, and should offer, a means for the safest possible investment because its service is necessary, its earnings are stable and certain, it is free from inventory losses and labor troubles, its business is on a cash basis, it doesn't lose one-fourth of 1 per cent of its gross revenues in the way of bad debts or otherwise.

I heard an old farmer, who held a little stock in a local company, say: 'I take the receiver off, I hear the operator; I know my investment is working.'

And last, but not least, my friends, I want to talk to you about the human element in the telephone business. I want to talk to you especially about our girls—your girls. Occasionally I get our employes around a dinner table, and I talk to them something like this:

'I want you girls to remember that your work is the most important work in this community. The welfare of this community depends more upon your work than that of anyone else. The most important men in town "shuffle off this mortal coil" and have a big funeral with a truck load of flowers and a row of automobiles a mile long to the cemetery while you are at the switchboard doing your duty constantly. Tomorrow, he will be forgotten, but your work touches the very heart throbs of this whole community.'

Yes, my friends, our girls are the best girls in the community. They are constantly and instantly at your service; they the entitled to your utmost consideration and respect. Do they always receive it from you?

A few years ago, a woman sat at a switchboard in the dead hours of the night in a little Nebraska village of a few hundred people. A message came over the wire to the effect that a great deluge of rain had fallen a few miles above the village, and that the water was rapidly flowing down the valley. The woman realized the danger. She immediately began calling the sleeping villagers, warning them to flee for their lives.

She remained at her post of duty until the water had risen into the switch room and put the switchboard out of service. She then waded through the water, waist high, in the inky blackness of the night to safety.

The governor of that state and the president of the great Bell telephone company called on the woman at the little village some days later and gave her a purse of $1,000 in recognition of the splendid services she had rendered.

I could tell you of many of the comedies and tragedies of the telephone business but time will not permit.

Look your telephone squarely in the face, remember the girls at the other end of the line and hear it talk to you something like this:

50,000,000 people will use me today,
I have put out more fires than all the fire departments,
I have prevented more burglaries than all the police departments,
I have saved more lives than all the doctors,
I have transacted more business than all the banks,
I have run more errands than all the errand boys,
I have stood guard when the world slept,
I have brought more of Christmas cheer than Santa Claus,
I enter and am welcomed everywhere,
Iron bars cannot keep me out;
I travel on the wings of light to the most remote places

And then it will ring off, as I am doing now, wishing you all a Merry Christmas and a Happy New Year."

Sleet Storms Cause Nebraska Companies Much Trouble.

Sleet storms the latter part of the week of December 1 caused damage totaling between $300,000 and $400,000 to the Northwestern Bell Telephone Co. and the Lincoln Telephone & Telegraph Co., with many of the smaller companies operating in the eastern half of Nebraska having to bear proportionately heavy burdens. A rain storm followed by snow and freezing weather coated the wires with ice, and the heavy wind that followed snapped and pulled down between 4,000 and 5,000 poles and caused literally thousands of wire breaks.

The storm put all of the important long distance lines out of commission in Nebraska, and the daily newspapers had to employ radio to secure the meager amount of telegraphic news they were able to print. From Nebraska the storm moved over into Iowa, where heavy damage, as yet unestimated, followed.

The companies were handicapped in restoring service by reasons of the weather and the lack of both experienced and inexperienced labor, but emergency circuits were working within a few days and the whole trouble is now in process of being wiped out.

The smaller companies suffered very largely in their farm plant. Many of their poles went down and wire breaks followed. Because of their limited employment of linemen, the work of restoration has been much slower than with the big companies.

This was the first destructive storm in the past six months. The larger companies had prepared for trouble by massing material and supplies, and this enabled them to get service restored in unusually quick time.

Grand Canyon Connected by Telephone with Outside World.

One of the last of the widely-known places in the United States to become accessible by telephone is the El Tovar Hotel on the rim of the Grand Canyon, Arizona. Telephone connection with the outside world has now been completed by a 240-mile wire to Phoenix, Ariz. The wire connects with the new transcontinental line between Chicago and Los Angeles, which is the longest through telephone circuit in the world.

Canadian Postal Strike Boosts Telephone Calls.

The recent strike of postal employes in Canada placed a heavy burden on the telephone system, especially on toll lines.

In the principal cities affected by the strike, the increased toll calls ran from 15 to 35 per cent over the daily average, but, notwithstanding this condition, about 93 per cent of the calls were completed.

Strowger Director System in Havana

Installation of Director Trunking in Havana Network Meets with Gratifying Success — In Spite of Unusually Heavy Load the New Equipment Upholds Reputation of the Strowger Automatic for Accuracy of Performance

By H. E. Clapham,

Advertising Manager, Automatic Electric Co.

The first Strowger automatic "directors" to be installed for service in a public telephone exchange are now busily clicking and buzzing calls through to completion for the telephone users of Havana, Cuba. Thus the Cuban Telephone Co., already noted for operating the busiest telephone exchange in the world, now has the added distinction of being the pioneer user of a device which ranks as one of the foremost developments in the century in telephone switching.

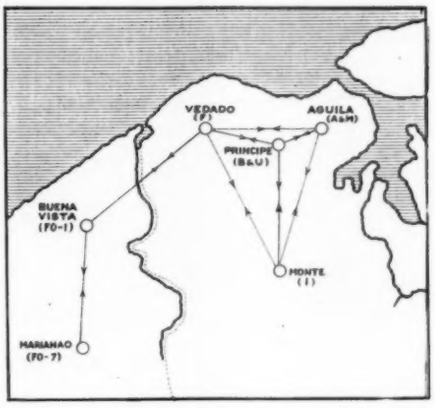
The director installation was successfully completed and cut into service at midnight on Saturday, November 15, coincident with the establishment of two new automatic central offices in the same city.

The actual work of inaugurating the new arrangement, while one of the most difficult and involved projects in the history of automatic telephony, necessitating more than 30 separate operations, was completed in less than an hour, and practically without interruption of service or inconvenience to subscribers.

The various steps in the "cutover" were directed from the Havana main office in Aguila street by F. T. Caldwell, acting chief engineer of the International Telephone & Telegraph Corp., and H. C. Hart, acting chief engineer of the Cuban Telephone Co., assisted by Rene Galvez, R. B. Hall and others of the local company and a group of engineers and installers from the Automatic Electric Co.. The work of installation was supervised by J. K. Barrington of the Automatic Electric Co., Chicago.

Chief Engineer T. G. Martin and Superintendent of Installation and Operation H. P. Mahoney, both of the Automatic Electric Co., were present at the cutover and for a few days afterwards to study the operation of the directors under actual service conditions.

It is a little more than two years ago that announcement was first made of the invention and development of the Strowger automatic director, "a new Strowger switching unit, designed to afford the utmost in trunking flexibility and economy for large city telephone networks."



Map Showing Network of Present Havana Automatic Telephone System.

Much of the intervening time has been devoted to testing, improving, re-designing, perfecting—making a change of circuit here, improving an adjustment there —in short, doing everything possible to insure that Strowger automatic standards of accuracy and reliability would be maintained. Endurance and other tests were being made constantly under conditions much more severe than any to be found in actual service.

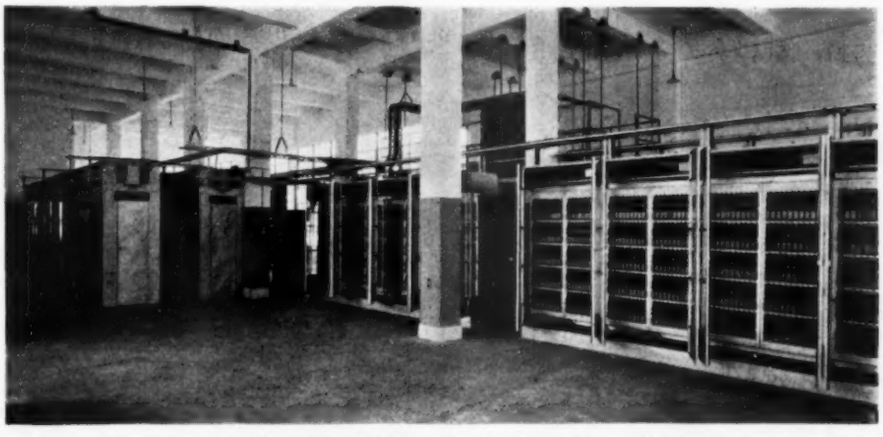
Those who had gone through the long, weary weeks and months of installing, adjusting and testing the director equipment for the Havana sub-exchanges must have experienced much the same thrills as did the inventors and makers of the first Strowger switchboard when they stood in the little telephone exchange at Laporte, Ind., more than 32 years ago, watching the first telephone calls being successfully handled by the then new "girlless" system.

But there was this difference. In 1892, it was a serious question whether the equipment would work. They had no absolute proof that their circuits and mechanisms, though simple and clear enough on paper, would do everything that was hoped of them. They had no background of experience—nothing but faith born of implicit belief that their ideas were fundamentally right.

The establishment of directors in actual service, however, could not go wrong. The mechanisms used were identical with those that had been in use in other exchanges for years—the whole scheme had been tested and re-tested under every conceivable combination of conditions. There was no room for doubt as to the ultimate outcome. Nevertheless, the intense interest, the pleasurable anticipation of success, were there. It was true pioneering—and pride of accomplishment was the reward.

What is a director? How does it work? These questions are not simple to answer, even when they come from an experienced telephone man, and an attempt to describe a director-equipped system to a layman is apt to be rather less intelligible than a Fiji Islander's conception of how an automobile works.

By means of reference to a specific installation, however, such as that at Havana, we can tell something of what the director accomplishes, and how it simplifies the trunking plan of a large city network.



New Principe Office of Cuban Telephone Co. at Havana.

Stripped of all miscellaneous features not necessary for the purposes of this description, the present Havana automatic system consists of the simple network shown in the accompanying map. Each of the four exchanges in what may be called "old Havana" has an ultimate capacity of one or two 10,000-line units. There are direct trunks between all offices and each telephone number consists of an office prefix and four figures. Principe is one of the two newly established offices mentioned in the opening paragraph.

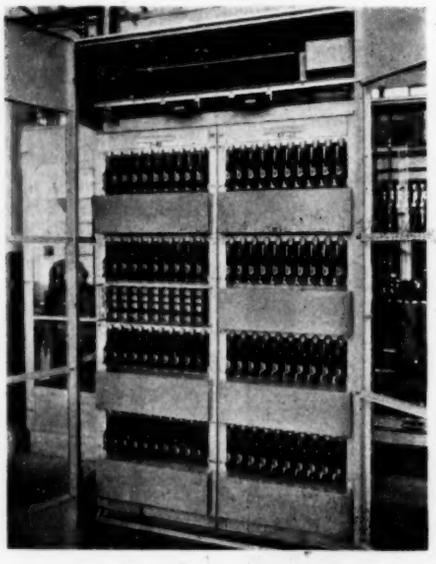
Some years ago, an automatic sub-office was opened at Marianao, a more or less isolated municipality to the southwest of Havana proper. The traffic there was largely local, and the exchange was, until the recent cut-over, treated as a local affair, with free automatic trunking to Havana via Monte office.

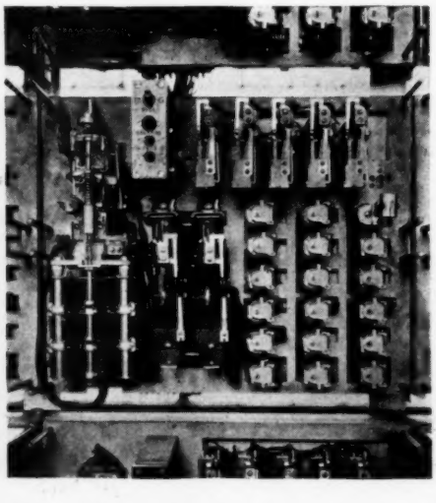
The development in the section north of this office in the past few years became so pronounced that it was decided to install another sub-office (Buena Vista) to relieve the Marianao office. Meantime, the traffic between these districts and Havana had grown to such proportions that service and other considerations demanded that the new district be included within the Havana area, and the whole network covered by a comprehensive numbering plan with whatever changes were necessary to make ample provision for future developments.

Disregarding the director for the present, the trunk connections to the Havana offices could have been handled in a number of different ways, but even the most efficient of them would have necessitated direct trunks from each of the two sub-offices to every other office in the network —a very uneconomical arrangement under these particular circumstances.

An ideal method would be to route all of this traffic over one group of trunks from Buena Vista to Vedado, but how to do this and still maintain universal numbering was the problem the director was called upon to solve.

The prime importance of the director in a case of this kind is that fact that it permits the establishment of a trunking plan





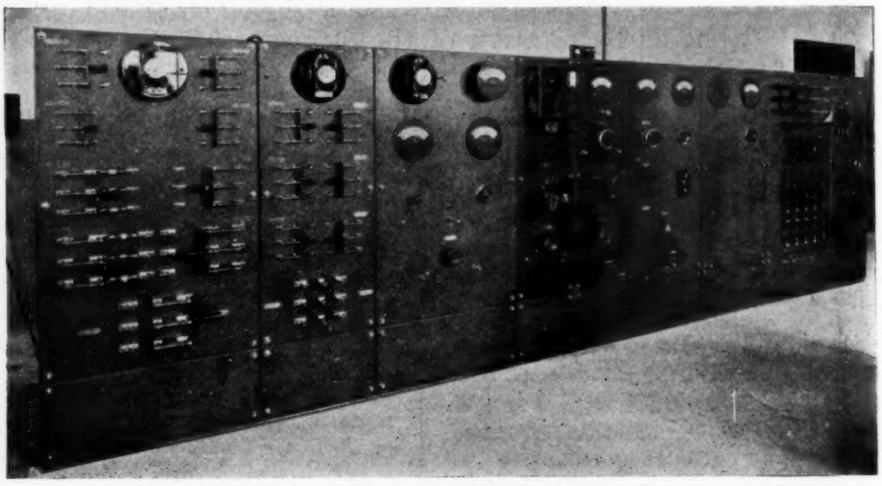
Director Selectors as Installed for the Cuban Telephone Co. at Havana, Cuba—Closeup of Director With Covers Removed.

entirely without regard to numbering. The result of the installation of directors in Marianao and Buena Vista has been to make such changes in the number and combination of impulses generated by the dials of subscribers in these districts that calls to Havana will be directed over the simple tandem trunk route indicated in the map.

To illustrate: Suppose a Marianao subscriber dials the number of an Aguila subscriber, say A2345. Without the use of directors, dialing the first digit "A" would necessitate routing the call over one of a direct group of trunks to Aguila office. The director, however, on receiving and registering the five series of impulses, first sends out two series of impulses corresponding to "3-0," which extends the connection through Buena Vista to Vedado. The director then sends out the five digits exactly as received over this trunk route and the rest of the connection is taken care of just as if the number had been dialed by a Vedado subscriber.

Another example of the director's usefulness is found in the case of a local call, say from a Buena Vista subscriber to another in the same office, say FO2354. Under the old plan, such a call might be routed through first, second, third and fourth selectors and a connector in the local office, or might even be routed to Vedado and back again, depending on the plan in operation.

The director, however, handles this call by receiving and registering the six sets of impulses, dropping the first two digits entirely and sending out the last four, the call being completed via a local thousands selector, hundreds selector and connector. The call is thus completed wholly within the office and office selectors are dispensed with entirely, both of which features form an important item of economy in a situation such as this one.

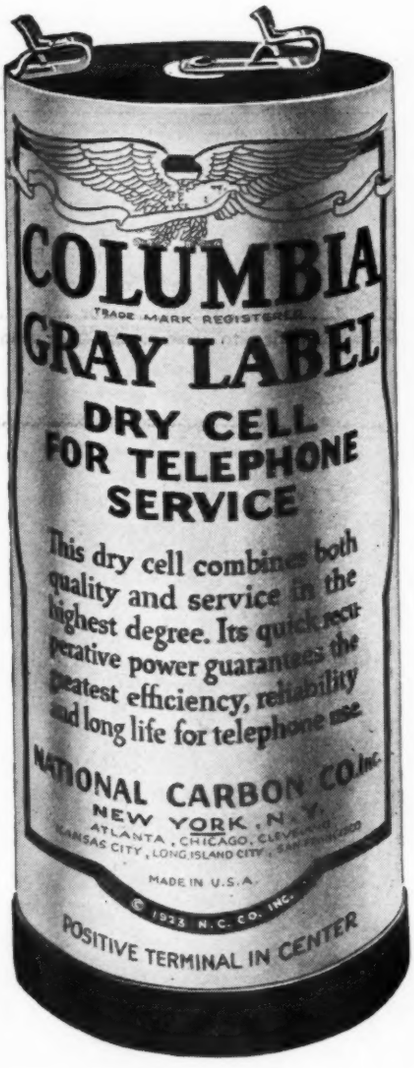


Power Switchboard, Principe Office, Havana, Cuba.

Since the directors are in use only during the time a connection is being established, the number of directors needed is relatively small. Twenty directors have been installed in each of the Buena Vista and Marianao offices, and service observations made since they were cut in service have shown that while, during the busy period, the directors are in use practically all of the time, no calls were being lost because of lack of facilities. A director is reached through a director selector (a non-digit type, having a rotary mechanism only) connected to the primary line switch trunk.

To one familiar with the working of switches in the ordinary Strowger switchroom, the operation of the director equipment is distinctly different. Mechanically, there is a similarity—the switches are the same as those that have become as familiar in modern exchanges as lamps and jacks were in the old. There is the same orderly, incisive, businesslike clicking as the switch magnets jump to life—but where the switches in the regular Strowger exchange follow the impulses sent out by the subscriber's dial blindly and without question, the director appears to hesitate, consider and then swiftly decide, finally clicking out the impulses and sending them to their logical destinations.

Merely to watch a director in operation is highly entertaining, especially if the watcher has some conception of what is being accomplished. A pendulum relay be-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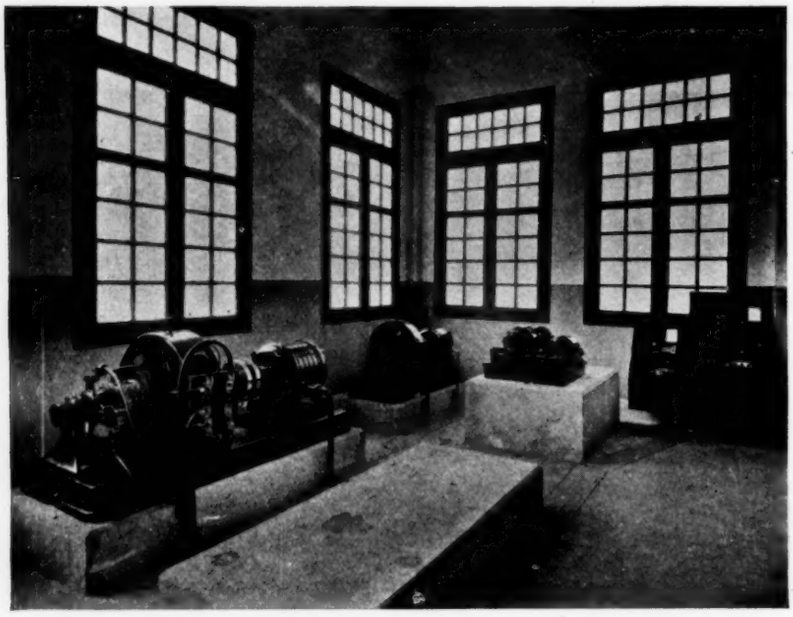
Manufactured and guaranteed by

NATIONAL CARBON COMPANY, INC.
New York San Francisco
Canadian National Carbon Co., Limited, Toronto, Ontario

Columbia Telephone Batteries

"less cost per month of service"



Charging and Ringing Machines, Principe Office, Havana.

gins to vibrate, a warning signal that the director has been seized by some subscriber. This is the standard impulse generator of the system.

The shaft of the Strowger mechanism steps up and rotates as the subscriber dials the first two figures of the call number. Then in rapid succession, small rotary switches buzz around one by one as they register the remaining figures of the number. But before their work is finished, another rotary switch begins to hammer out the impulses that will search out the destination of the call link by link over the network of trunks, finishing its work only a second or two behind the subscriber's dial.

As far as the telephone subscribers are concerned, the benefits of the director system are, if the unintentional pun be pardoned, chiefly indirect. There is frequently, as in Havana, considerable improvement in transmission, due to simpler and more direct trunk routes, but the main advantages accrue to the operating company in greater trunking economy and flexibility.

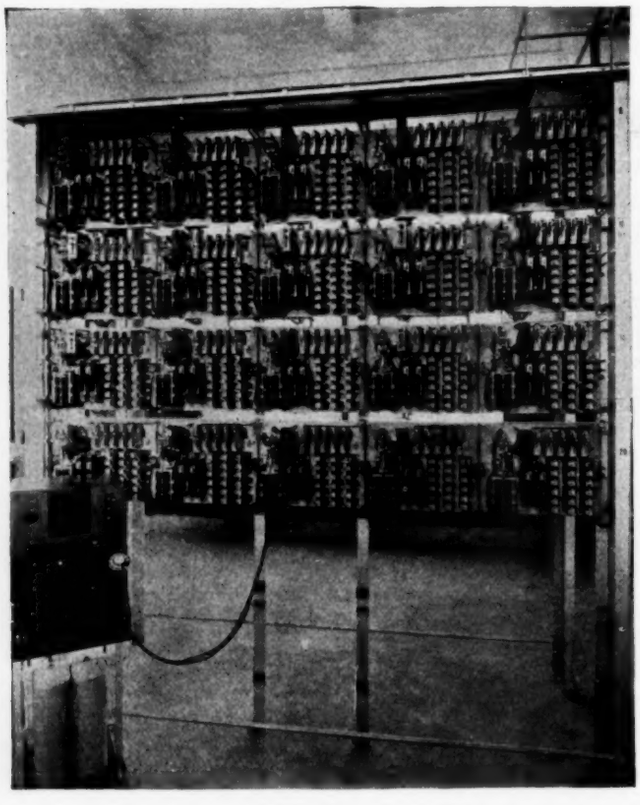
The progress of the director installation in Havana has been watched with intense interest by operating engineers and executives all over the world, and the smooth and accurate operation of the system since the cut-over has been a source of intense gratification and will undoubtedly have a profound effect on development plans for other cities where similar conditions prevail.

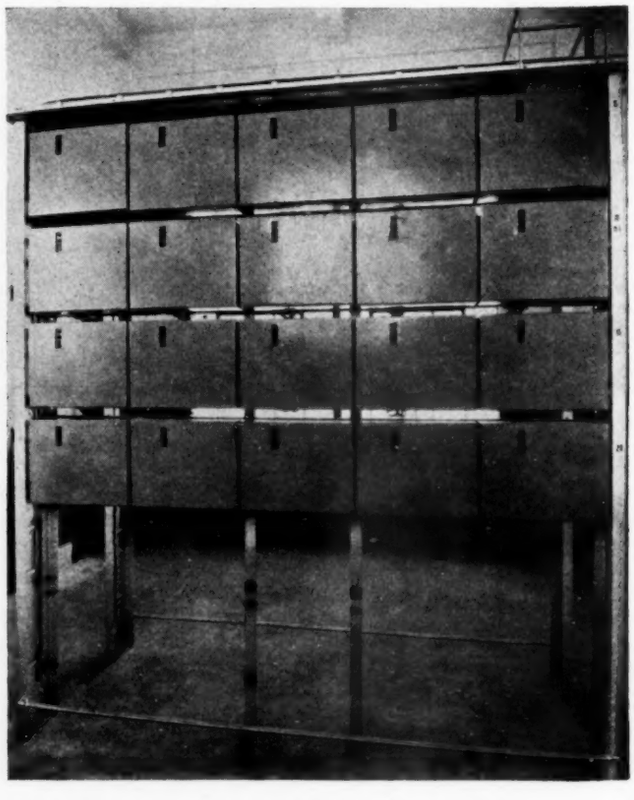
Find Many Different Uses for Telephone Circuits.

During 1924 six separate and different uses of telephone wires have been made.

The wires have been used for local telephone purposes, for long distance telephone conversations, for telegraphing news stories to newspapers, for connecting up the public address system, for connecting radio stations scattered over the country to broadcast the proceedings at the national Republican and Democratic conventions and speeches of nation-wide interest, and for sending photographs, finger-prints, cartoons and sketches.

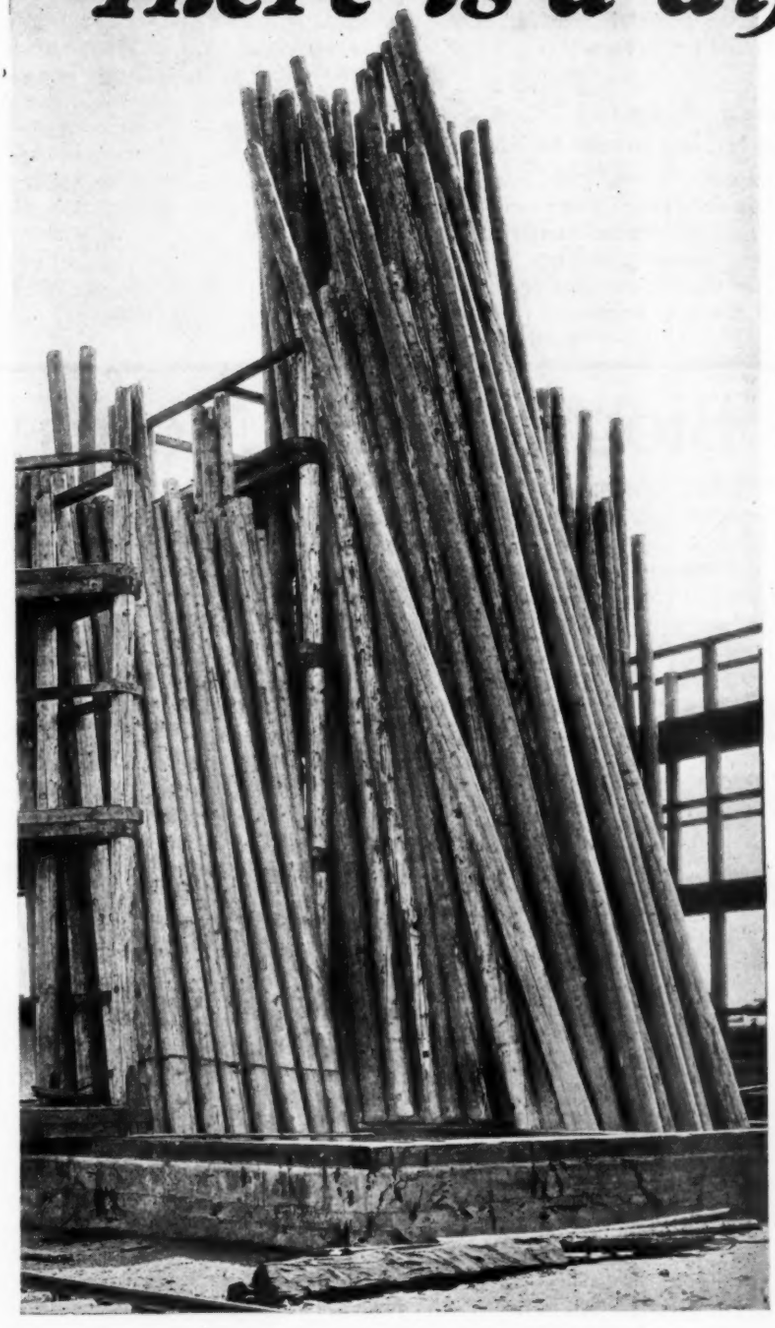
Less than half a century ago the world was startled when Alexander Graham Bell, through his invention of the telephone, succeeded in sending voice messages over telegraph wires. The art and methods of communication by wire advanced rapidly until not so very long ago means were devised to send both telegraph and telephone messages over the same wires at the same time. However, the developments of 1924 have pushed such startling feats into the background.





Director Unit With 20 Directors Installed, Showing Routine Test Stand—Director Unit With Covers in Place.

There is a difference



And that difference is of vital importance to the buyer of cedar poles. It is of even greater importance than the remarkable distributing service which this Company has developed.

Itis the *treatment* whereby the National Pole Company has added still more years to the life of a cedar pole. The processes and methods employed are exclusively our own — the result of years of research on the part of this Company, in connection with the largest pole buyers in America.

And so perfect is the product that every National Pole is branded with the date of the year of treatment.

NATIONAL POLE COMPANY

Escanaba, Michigan

***Western Electric Company* Distributors**

Sales Offices in 49 Principal Cities

Please tell the Advertiser you saw his Advertisement in TELEPHONY.

Subterranean Traffic System to Be Built in Marseille, France.

With considerable pride, possibly a little strange from an American viewpoint, the local administration of posts and telegraphs has announced that Marseille is to have a subterranean telephone system, reports American Consul Hooker A. Doolittle, of Marseille, France. Commercial men of all regions of France have for a long time complained of the existing telephone system and every announcement of a project of betterment is greeted with enthusiasm.

The work, which on account of the cost must be divided into sections, is to be begun during the last quarter of the year in the center of the city. On completion of this so-called "central kernel," it is contemplated to carry out similar work towards the fine residential sections of the Castellane and Prado.

Customer's Wants Telephoned While He Is Enroute to Floor.

Sam Berger's store in San Francisco, Calif., occupies three floors with the ready-to-wear department occupying the third floor. Special telephones are provided at the elevator entrance at the first and third floors by means of which the salesman on the third floor is informed by the floorman on the first floor that a customer is on his way and what he desires, this conversation going on while the customer is in the elevator.

As soon as a customer enters the store, the floorman ascertains the customer's wants in the ready-to-wear line, and then directs him to the third floor, using the elevator, and while the elevator is proceeding to the third floor the floorman quickly informs the salesman on the third floor of the customer's wants, so that when the customer emerges from the elevator on the third floor, he is greeted by the salesman who already knows the customer's wants.

Personal and Biographical Notes

Fred A. Norris, secretary, treasurer and general manager of the Monmouth Telephone Co., Monmouth, Ill., elected president of the Illinois Telephone Association at the convention last month, has been actively engaged in the telephone business for more than a quarter of a century. He has been a director of the Illinois association for the past six years and has actively participated in the work of the association for many years.

Born in Perry, Pike county, Ill., November 4, 1883, Mr. Norris as a boy commenced his education in the public schools. Upon graduating from the Mt. Sterling high school some years later, he continued his studies through a correspondence school.

Prior to entering the telephone field Mr. Norris was employed for some time in an electric light plant. He was later engaged in steam engineering for a time. His first experience in telephone work was in 1898 when he helped build and cut in service the Independent exchange at Mt. Sterling, Ill.

In 1902 he started in as installer with the Bell company at Springfield. He worked as installer and repairman on exchange and also toll lines until 1907 when he secured the position of plant chief with the Monmouth Telephone Co. After serving the company in this capacity until 1917, he was promoted to the position of general manager which he has continued to fill down to the present time.

The Monmouth company was organized in 1901 in competitive territory. It commenced operating with about 300 magneto stations. Business grew very rapidly and it was difficult for the company to keep pace with the demand for service. In 1907 the company had 1,000 stations in service.

Two years later, in 1909, the Monmouth company purchased the local Bell property, consolidating the two systems and moving into new quarters with an entire new common battery exchange. The company has experienced a steady growth since that time and now operates over 3,000 stations and furnishes first class local and toll service, with Independent toll lines to all nearby towns.

The Monmouth company, Mr. Norris states, has been one of the pioneers in the use of buried cable, in the use of 48-volt toll transmission on Independent toll lines and in the developing and installing of large gage quadded toll cables in exchange areas for Independent toll lines.

President Norris of the Illinois Telephone Association Is a Pioneer in the Telephone Business.

Mr. Norris is a Mason, a Rotarian and a member of the Monmouth Chamber of Commerce, the Y. M. C. A. and the Christian church. Wandering around the woods enjoying the beauties of nature and fishing are his hobbies.

As previously stated, Mr. Norris has been active in the work of the Illinois association for a number of years. He has served on various committees, including the committee appointed to revise the constitution and by-laws of the association, the committee on the toll commission contract, that on service connection charges, and others.

A. F. Hardman, of Findlay, Ohio, has been appointed assistant to the general manager of the Ohio Bell Telephone Co., in general charge of company advertising and publicity, according to a recent announcement by Randolph Eide, general manager of the Ohio Bell. Mr. Hardman has been connected with newspapers in Findlay, Toledo and Mansfield.

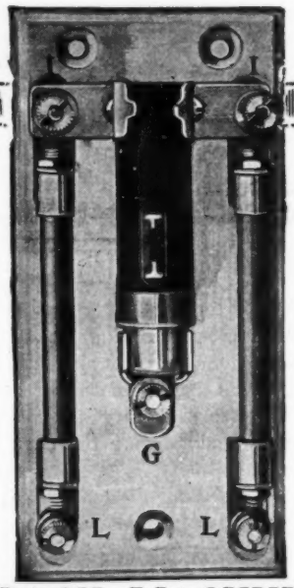
Obituary.

Jerry Yellott Rust, of San Angelo, Texas, one of the founders of the San Angelo Telephone Co., died recently in a local hospital at the age of 54 years. A weak heart, after two years' illness, is said to have caused his death.

Jerry Rust and his brother, John Y. Rust, who is president of the San Angelo Telephone Co., moved to Texas in 1897 and to San Angelo the following year. Jerry Rust retired six years ago from the telephone company, which he and his brother had established, and embarked in ranching.

George Wheeler Foster, special agent for the Southwestern Bell Telephone Co., at Dallas, Texas, passed away recently at a local sanitarium after suffering from an illness for nearly a year. Mr. Foster was 70 years old at the time of his death.

In 1898 Mr. Foster became special agent for the Southwestern Bell in Dallas. After serving in this capacity for three or four years he became assistant to the general manager of the company. He was editor of the Southwestern Telephone News from the time of its establishment in 1906 until 1915, when he again became special agent, which position he held until his decease.



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Take our new Type 440, for instance. It embodies all the advantages of BRACH Arresters—full protection against lightning, crosses, grounded lines, gives clear transmission and balance of potential between pairs.

Price complete with porcelain base, fuses and mountings—$2.00 each.

L. S. BRACH MFG. CO., Newark, N. J.

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Time and the aid of America's foremost engineers, have enabled us to develop and manufacture the highest grade wire known to the trade. It is greatest in conductivity and lasting qualities, due to the superior quality of material from which it is made, as well as its *Extra Double Galvanizing*, which insures longest life.

STEEL STRAND

Single and Double Galvanized, Standard, Siemens-Martin, High Strength and Extra High Strength Grades.

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INDIANA STEEL & WIRE CO.

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The quickest, easiest way

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THERE'S a better way to true up wabbly, noisy, inefficient commutators in telephone machines than to apply abrasive papers, sandpaper blocks, or to take the machine off the line to true it up in a lathe.

The Ideal Commutator Resurfacer does it in just a few minutes.

Sparking, high mica, low spots, all are eliminated in a jiffy with an Ideal like the one shown. It is a manufactured stone of uniform cutting quality. It takes hold of any metal, won't clog up, and lasts a surprising length of time.

We have a resurfacer for every Type of Telephone Machine whether it is a charging generator Type M-1 or M-15, charging motor Type E2BOR or R.M.C.36, Ringing Machine Type P¼ to P2, Tone Test, or Message Registers.

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We are interested in trying your Ideal Resurfacer. If we like it we will send our confirming order. It it does not come up to our expectation it is understood this trial will have cost us nothing and the incident shall be considered closed. The machine upon which we wish to conduct this trial is a

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☐ Message Register Type

Firm .....

Address .....

.....

My Name .....

Peg Count in the Smaller Offices

Value of a Peg Count in Smaller Offices, in Determining Amount of Switchboard Equipment and Number of Operators Needed and Properly Distributing the Force—Paper Presented at District Meeting at Plattsburgh, N. Y.

By Miss Marguerite P. Croake,

Traffic Supervisor, Northern New York Telephone Corp., Plattsburg, N. Y.

Before explaining the value of a peg count, it would be well to give you an idea of just what a peg count is. Contrary to the idea held by the uninitiated, it is not a count of a lot of little pegs in a board, although this may have been the origin of the term. A peg count is the record of all classes of business handled. It can be compared to the record of sales kept in a store, without which no business can expand properly.

There are two parts to the peg count as kept at smaller offices, the first being a count of all local calls and the second a count of all business handled at the toll board, or over toll lines, which would include outward, inward and through business, and the various classes of ticket work.

This record is used as a basis in determining the amount of switchboard equipment, etc., needed, the number of operators required to handle the traffic, and the efficiency with which the work is handled.

Now, in just what manner can the figures be used, once we have them?

I will not go into much detail in explaining this but will leave that for the various instructions and circulars on this subject, of which there are a number published, principally by the American Telephone & Telegraph Co., by which these studies were originated.

When studies were first made of the traffic handled, it was realized that it would not be fair to compare a toll call with a local call because of the difference in the length of time which it took to handle them. It was, therefore, decided to establish some basis of comparison. After much study and comparison of traffic, it was found that, on a certain type of board a straight local call from one local subscriber to another as a rule took 15 seconds to complete. This type of call was, therefore, taken as a base and was given the value of one unit.

The value of each other class of call was determined by the number times 15 seconds which it took to complete it, delays, etc., being considered. It was then found that an ordinarily experienced operator should handle an average of 230 units each hour. This applied both to local and toll operators. (This load has been altered somewhat for various classes of traffic and various types of switchboards from time to time.)

Since, therefore, certain types of toll calls may take as long as 18 or 20 times 15 seconds to handle, or are worth 18 or 20 units, it is apparent that, while a local operator may handle between 200 and 300 originating local calls an hour, a toll operator who is handling all types of calls—outward, inward, and through switching calls—may only handle about 10 or 12 originating outward toll calls. By reducing all types of calls to units, we have a basis from which we may determine the amount of switchboard equipment, number of operators, etc., required to properly handle the work.

Value of a Peg Count.

It is a known fact that a great deal of money is wasted every year by smaller companies, and some larger companies as well, because they are not organized properly, or because their switchboards are either too small or too large for the amount of traffic handled.

Let us illustrate how this applies to the equipment required. A certain small company not far from here, whose old switchboard was nearly worn out decided it would have a new board. So, apparently believing they should get all they could for the money they had to spend, they talked the matter over among themselves and, without having a study made of the work they were handling, ordered a wonderful new switchboard with all the latest improvements.

After the switchboard was installed ready to be cut-over, someone conceived the bright idea of having a study made. When this was done, it was found that there were more local and rural positions in the new installation than would ever be used within the life of the board and there were only about half enough toll positions. It was then necessary to have the equipment in some of the local positions torn out and toll equipment put in instead.

Those of us who realize the high cost of switchboard equipment, and I think we all do, can easily see that many thousands of dollars might have been saved had the proper records been at hand to make this study in advance. In like manner, even on very small installations, much money can be saved by a proper study being made in advance.

After the matter of equipment has been satisfactorily determined, it is necessary to have sufficient accurate records on hand so that we can keep our finger on the pulse of the business handled at all times. There is an office in this territory which, a few years ago, was handling enough business so that it was necessary to have four operators on duty during the busy hours each day.

After a while it was apparent, from the peg count records, that for some reason the traffic was falling off. An investigation was made and it was found that this was due to local business conditions, such as a certain factory closing down or something of the sort. By watching this situation carefully for a while, it was found that, instead of employing seven operators on the force it was necessary to employ but five. We thus saved about $1,500 a year by keeping these records and using them properly.

It has been found in some of our smallest exchanges that it is not necessary to maintain an office in an office building in town, but it is possible to give just as satisfactory service—sometimes more satisfactory as it is more continuous—by establishing the switchboard in some private home and appointing the householder as our agent in handling the traffic.

There are several points of policy which enter into a plan of this sort, however, that should be considered before it is adopted. It is, of course, practical only in small communities where the traffic handled is sufficient for but one operator at any time.

Losses Due to Under-Organization.

It is easy to see, therefore, how a great deal of the profit in some small companies, is eaten up by their being over-organized, but I do not think we realize that we may often lose money by being under-organized; that is, by not having enough people to handle our business properly. In other business enterprises it is customary, when business is found to be expanding, to obtain larger quarters and employ more people. This should be true in the telephone business, but how are we to know that our business is expanding unless we have proper records at hand?

When the 15-second unit, spoken of before, was decided upon, it meant that at least 15 seconds were required to properly handle a call of the type chosen. If, therefore, so many calls are being handled that only five seconds are left for each local call, some call is necessarily being

Does YOUR Ringing Machine Cause Interference With Radio Reception?

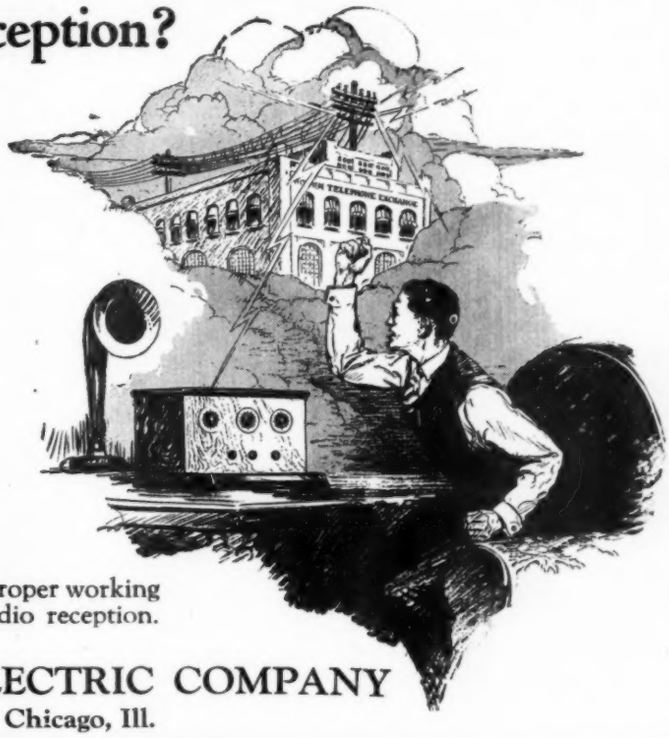
IN MANY communities the Telephone Exchange causes serious interference with radio reception, and enjoyment of radio is consequently spoiled.

The ringing equipment used by the exchange is frequently found to be the cause of this trouble.

Is *your* exchange offending in this manner?

Here is a simple and efficient method of remedying the trouble.

Substitute *Generator Current* for interrupted current by installing a



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Magneto-Ringing

Motor-Generator Set

We guarantee our machine, if maintained in proper working condition, will cause no interference with radio reception.

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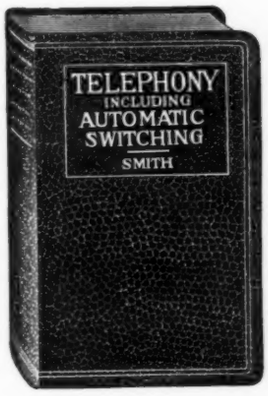
If a man is to succeed in the business world today he must be "worthy of his hire."

So it is with books. They also must give the reader his money's worth.

In offering "Telephony, Including Automatic Switching," for sale, its publishers have arranged an excellent collection of helpful information and data fully illustrated and up-to-date for the telephone man.



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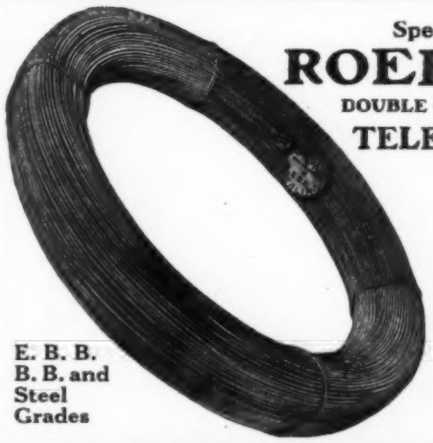

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TELEPHONE

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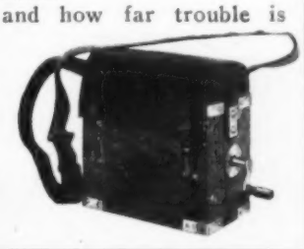
Money saved is money earned.

WINTER TROUBLE

The "STEWART" Test Set saves miles of travel. Every mile travelled costs money and "Winter" miles cost more than "Summer" miles.

By telling which way and how far trouble is from the tester without opening the lines, the "STEWART" Test Set will save these costly miles as well as time and material.



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OTTAWA ILLINOIS

Please tell the Advertiser you saw his Advertisement in TELEPHONY.

slighted, and some subscriber is not getting the attention he should have.

This applies to toll business as well as local. Such a condition is apt to occur at any office once in awhile during a sudden rush of business, but if it is happening every day, something is wrong and steps should be taken to remedy it. It is poor economy not to have sufficient equipment and enough operators to properly handle our traffic. In that way we are driving away our business and, instead of saving money, we are losing it.

After we have the proper equipment and the required force, our peg-count records will assist us in distributing our force properly over the various periods of the day, in order to obtain the greatest efficiency from them. They will show us which are our busiest hours and which are the slack hours, and by taking the force away from the slack hours, we will have them available for the busy hours. We can also determine which of the days of the week are the busiest and arrange to give time off, for Sunday work, etc., on the days which are not so busy.

We have found it best to keep these records two days each month at some of our larger offices, once during each season at our smaller offices, and only once a year at the smallest.

Each office has its individual problems and these are best made apparent by peg-count records. I am sure that if we will give these matters a little thought and study, much may be accomplished both in the interests of economy and efficiency.

Data on Telephone Service in Canada.

Communications between the United States and Canada, according to R. B. Curren of the transportation division of the U. S. Department of Commerce, comprise an efficient system of cables extending from New York to the eastern provinces of Canada, and many telegraph and telephone lines which cross the border. The mail service to Canada is practically a continuation of the United States service. Aviation, although still in its infancy, is being developed and utilized for varied purposes. Plans are on foot to use the Canadian radio stations as part of the British imperial wireless scheme.

Telephone development in Canada dates from the year 1880, when the Bell Telephone Co. of Canada was incorporated by act of parliament. Besides the large telephone companies, there are now many smaller systems in all the provinces, usually owned privately or coöperatively. The number of Independent lines is particularly large in Saskatchewan.

On January 1, 1923, the latest date for which comparative figures are available, Canada had a total of 944,029 telephones, of which 196,800 were operated by the government and 747,229 by private companies. On that date, according to statistics compiled by the American Telephone & Telegraph Co., Canada had 4.12 per cent of the total number of telephones in the world.

This report states that there was an increase of 41,939 telephones during 1922, making Canada then stand second in regard to the number per 100 people. Its average was 10.4 per 100, as compared with 13.1 per 100 for the United States, which ranked first.

Many of the large cities of Canada were well-equipped with telephones. Montreal, a city of 892,000 population, had 92,376, while Toronto, with a population of 583,000, had 112,211, and Ottawa, with a population of 167,000, had 27,279.

The number of miles of telephone wire in the combined government and private systems aggregated 2,396,805, or 3.90 per cent of the total world mileage of 61,428,058. The combined gross earnings of the private telephone companies and the government telephones for the fiscal year 1922-23 were $39,559,149, or an average of $42.86 per telephone.

Declares Radio Is Indispensable to Average Home.

Covering in detail the many phases of the operations of the U. S. Bureau of Navigation, Commissioner D. B. Carson in his annual report to Secretary of Commerce Herbert Hoover, stresses the phenomenal growth of radio and the necessity of adequate legislation to provide for future developments in this field.

Although cooperation has enabled the supervisory radio office of the Bureau of Navigation to function under existing law without serious hardship to anyone, the commissioner states that a more defined program is desirable.

"It seems probable," he says, "that broadcasting is permanently established as a public necessity and may be considered as indispensable in the average home as the telephone."

The question of who will pay for broadcasting in the opinion of Mr. Carson does not appear to require immediate consideration.

"The public will probably continue to contribute liberally through cost of equipment purchased," he states. "At present, there does not appear to be a more equitable way of distributing the cost, while, on the other hand, such stations must have considerable advertising value justifying the expense of operation where owners are not benefited through sales."

Commissions, Courts and Councils

Discussions and Rulings of State Bodies Having Supervision Over Telephone Companies—Decisions of Courts in Matters of Interest to Public Utilities and Actions of City Councils Relative to Franchise, Rates and Service

Investigation in Northern New Jersey Rate Case Concluded.

Cross-examination of telephone officials in the hearings on the New Jersey rate cases of the New York Telephone Co. was continued on December 2 and 3 before the public utility commission. The principal witness was T. P. Sylvan, a vice-president of the New York Telephone Co., who testified on the advantages of the services received by his company from the American Telephone & Telegraph Co. Other witnesses were Frederick L. Rhodes and A. J. Allen, of the engineering staff of the A. T. & T. Co.

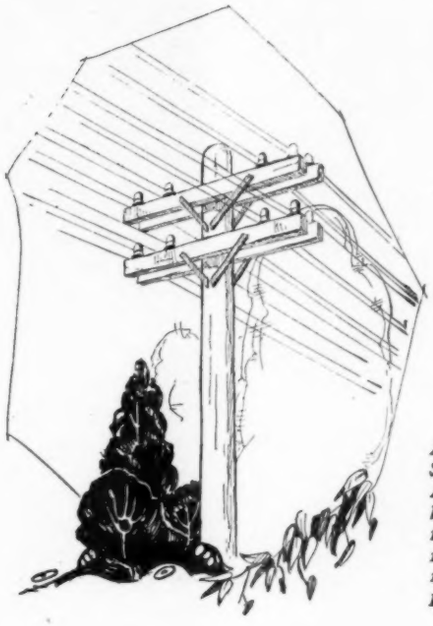
Upon the conclusion of the cross-examination of witnesses by counsel for the commission, the part the operator plays in furnishing telephone service was described fully by George M. Beal, district traffic manager of the New York Telephone Co.

Mr. Beal gave a complete picture of the operation of a central office to show the functions of the switchboard operator in giving the most efficient service possible. Traffic forces were adequate in all offices, he said.

This witness also took up in detail the complaints regarding the service made to the commission and endeavored to show that many of these irregularities were due to momentary mechanical and electrical troubles rather than defects in the service. He illustrated several points by means of a model switchboard.

Telephone service in northern New Jersey was described as "good" today by R. E. Walker, of Englewood, general traffic supervisor of the New York Telephone Company, in testifying before the commission the following day, December 4. He based this conclusion upon the service observations conducted regularly as a part of the operation of the system in which a portion of the service is "sampled" to determine the quality of the service as a whole.

Treating the subject in its entirety Mr. Walker said that the operating forces throughout the New Jersey territory were



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adequate and well trained and that there was sufficient equipment. Every switchboard operator, he continued, had "a sincere desire and will to give the best service possible."

Miss Marguerite McGilliwie, chief operator of the Bigelow central office, Newark, and Miss Augusta Greenslade, chief operator of the Market central office, Newark, each testified concerning the service from the chief operator's point of view.

I. J. Thorp, general plant supervisor of the telephone company, told of studies made under his direction to analyze the causes of "don't answers." Only about 14 per cent of "don't answer" reports were in error, he said, and told of more than 80 varieties of equipment troubles which could cause erroneous "don't answer" reports.

The commission's investigation of the application of the New York company for new local rates in northern New Jersey was brought to a close December 5 with a summary of service conditions presented by James G. Wray of Chicago, a consulting engineer retained by the commission. Mr. Wray pointed out that his survey was perhaps the most comprehensive of its kind ever undertaken.

In his report he declared that telephone service in northern New Jersey was "good and generally satisfactory" and that his survey showed that an average of only 6 per cent of all calls made go wrong.

"It would be absolutely impossible to give perfect service," he declared.

Immediately after the close of the case Frankland Briggs, attorney for the telephone company, called the attention of the commission to the great volume of testimony to be considered in this case and to the fact that the time allowed to render a decision would expire January 1.

If no decision were reached before that date he said the company would be willing to put the new rates into effect pending the decision and would give bond in the sum of $3,000,000 to cover any refunds to subscribers should these rates be in excess of those finally determined. Chairman Harry V. Osborne said this proposal would be given full consideration.

Ask $41,000 for a Delay of 17 Minutes on Fire Call.

Two residents of Orange, N. J., filed suits December 1 for $41,000 against the New York Telephone Co. in the common pleas court at Newark, N. J., because of an alleged delay of 17 minutes in getting a telephone operator to answer a fire call on the morning of April 6 last.

Michael J. Codey, owner of a garage, is suing for $25,000, and James J. McGrath, lessee, for $16,000. The telephone company is charged with failure to supply service under the terms of a contract with the subscriber and with failure to give service under its common-law duty.

Mr. Codey, in his complaint, says that a newsboy discovered the fire at 4:40 a. m. and reported it to him at once. For 17 minutes, Mr. Codey says, he was unable to get an operator to answer the telephone. During this time, he says, his calls of fire awoke other residents in the neighborhood and they joined in an effort to raise the operator, but could not get a response. The engines, he says, arrived a few minutes after the operator answered, but it was then too late to save the garage.

Community Growths Around Lincoln, Neb., Cause Problems.

The Lincoln Telephone & Telegraph Co. will shortly make application to the Nebraska State Railway Commission for permission to enlarge the present zone boundaries of Lincoln and to make other changes in the existing schedule. At present and in the past the company has established a zone limit beyond which subscribers have paid 25 cents a month extra for service for every quarter mile of pole line necessary to be constructed to serve them.

Around the city, on two sides, in recent years, have grown up communities that have increased steadily in population and extent of territory covered. This has resulted in as many as three different rates being collected in the same community, a situation that has given rise to some protest.

The proposition the company is now seeking to work out contemplates extending the zone boundaries half a mile on all sides of the city, and where this results in discrimination between members of the same community, to reduce this to the minimum. It is necessary, of course, to have a fixed limit somewhere, and it is proposed that beyond this limit, where one community is served, the rate shall be 25 cents extra regardless how far the lines run from the zone limit.

Allows Rate Application in Part; Scores High Uncollectibles.

The Redfield Telephone Co., operating some 1,057 telephones in Redfield, S. D., and vicinity, was authorized by the South Dakota Railroad Commission, in an order handed down November 29, to increase its local business and residence rates 25 cents per month and to establish charges for extension sets. Permission to increase the rural party line rate was denied.

The new net monthly rate schedule, effective January 1, 1925, follows:

Business, main line, wall type	$2.25
Residence, main line, wall type	1.75
Residence, party line, wall type	1.25
Desk sets, extra	.25
Business, extension sets, with bell	1.00
Residence, extension sets, with bell	.75
Extension bells	.25
Rural party line	1.25

The company is ordered to keep its books in accordance with the requirements of the uniform system of accounts promulgated by the commission and to desist from its practice of appropriating all surplus revenues as dividends and to set up a depreciation reserve in accordance with the rules of the commission.

The company's books showed a plant cost of $61,103 but because of its failure to make proper deductions for plant taken out of service, it appeared to the commission that this figure was not entirely representative of the actual cost of the property. After making an appraisal of the plant the commission found $50,000 to be a fair and reasonable value of the property.

With this figure as a basis, it was estimated that the rate schedule as approved would yield a return of 8.4 per cent.

The commission's opinion in this proceeding reads, in part, as follows:

"The applicant company introduced evidence to show that it has been compelled to charge off $2,542.55 as uncollectible revenues for the years 1922 and 1923. This figure represents nearly 12 per cent of the accrued annual revenue for the year 1923. Even though this amount is for uncollected revenue for two years, we are of the opinion that it is greatly in excess of what, under careful business management, should be permitted.

The officers of a telephone company are charged with the duty of making every reasonable effort to collect all telephone rentals. The failure to collect accounts due imposes an added burden upon either the owners of the property or upon those subscribers who pay their rental promptly.

From the record it appears that during the past four years the company has remodeled and improved a considerable portion of the exchange plant in the city of Redfield. The improvements consisted of the substitution of a large amount of underground cable for aerial construction, the building of a modern and up-to-date exchange office building and other improvements of like nature.

It likewise appears that practically no improvement whatever has been made as far as rural line construction is concerned and it further appears that the situation, with respect to rural line property, has become very bad, and we desire at this time to call to the attention of the company the necessity of giving consideration to an early improvement of its rural plant."

Injunction Granted Pending Appeal from District Court.

In the case of the Pacific Telephone & Telegraph Co. vs. Agnew, appealed from the district court to the circuit court of appeals of the state of Washington, the court, on November 3, granted a temporary injunction from the decision of the district court, pending an appeal. The motion for a temporary injunction restraining the prosecution of a suit in the state courts where the case was not re-

movable, jurisdictional facts not appearing, was denied by the district court on October 20.

The defendant had brought suit in a state court to recover the difference between the rates in effect prior to and those charged after the interlocutory injunction was granted by the three-judge court on July 23, 1924. The plaintiff took steps to remove that case to the federal court and then applied for an injunction to restrain the defendant from taking further steps in the state court, the other allegations of the bill being similar to those referred to in the statement of facts in the Pacific Telephone & Telegraph Co. vs. Star Publishing Co., supra.

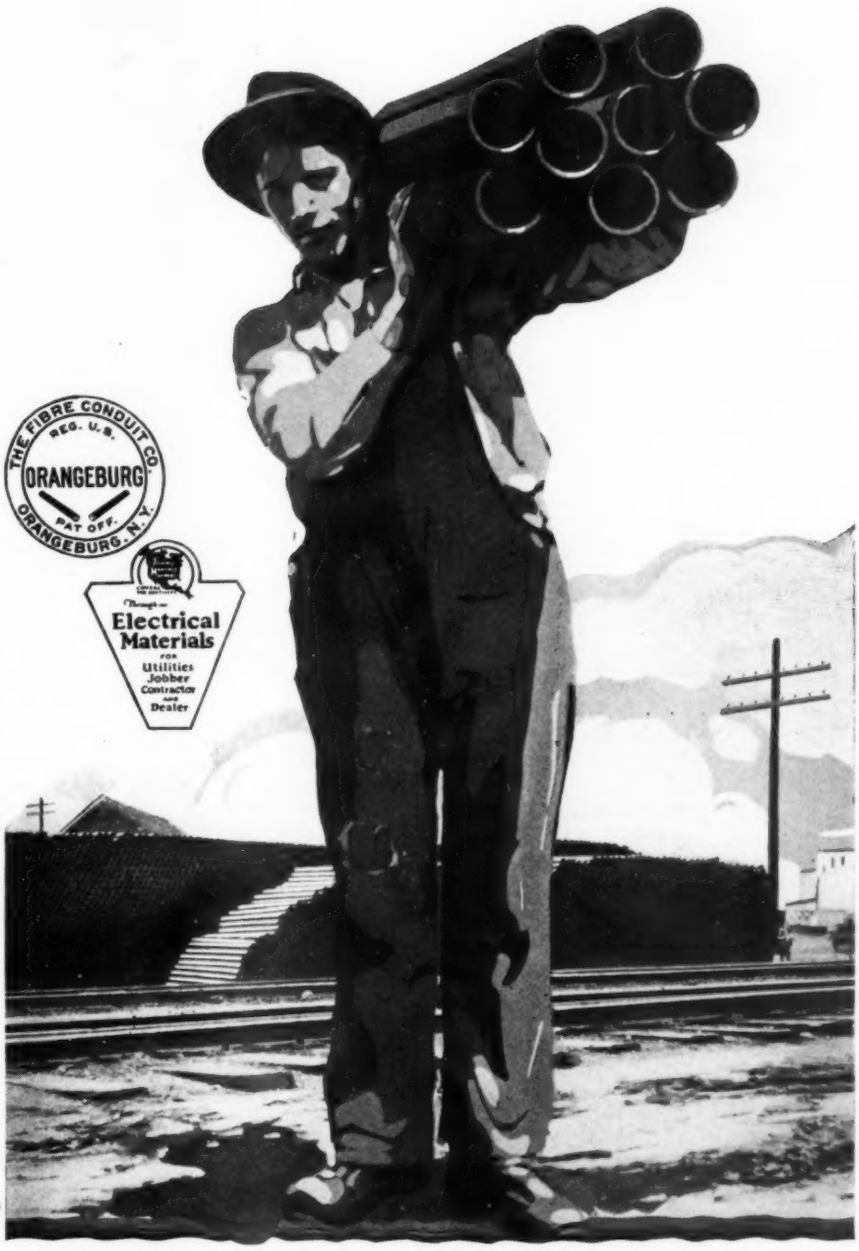
The district court held that according to the statutes the company is required to file with the commission and keep open for public inspection a schedule of rates, and the company's right to receive compensation rested upon and must be as specified in its schedule on file and in effect at the time; under the statute it was necessary to file the schedule of rates in order to make effective the interlocutory injunction granted by the three-judge court on July 23, 1924.

The court held, further, that since this step was not taken, the motion for a temporary injunction would be denied; that this case was distinguished from Star Publishing Co. vs. the Pacific Telephone & Telegraph Co. in that this transaction was past and concluded, and established an independent relation—it was not ancillary to the rate case—while in the Star Publishing Co. case it was sought to establish conditions and continuances of future relations, and was ancillary to the Pacific Telephone & Telegraph Co. vs. Department of Public Works rate case. Since this case was an independent transaction, the case pending in the state court, Agnew vs. the Pacific Telephone & Telegraph Co., was not removable, jurisdictional facts not appearing.

Rules that Federal Court Has Jurisdiction in Case.

A temporary injunction was secured by the Pacific Telephone & Telegraph Co. in district court in the state of Washington restraining the prosecution of a suit by the Star Publishing Co. in the state court, where the matter in controversy was the same as that over which the federal court had taken jurisdiction.

On April 24, 1923, the telephone company instituted suit in federal court against certain officers of the state of Washington to enjoin them from attempting to compel it to maintain and keep in force the rates and charges prescribed by the department of public works of the state and from attempting to interfere with the plaintiff in immediately putting into effect higher rates, the company alleging confiscation. After divers proceedings an interlocutory injunction was entered prohibit-



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ing interference with the company in charging higher rates. Thereafter the rates were charged under and pursuant to the injunction order.

On August 6, 1924, defendant, a telephone subscriber, applied to a state court for a writ of mandamus, naming as defendants the plaintiff telephone company and two of its employes, and demanding that plaintiff be directed to furnish telephone service in Seattle at the rates specified in a certain ordinance alleged to be a contract. Plaintiff then filed notice of petition for removal of the suit to the federal court, and filed a proper bond. The state court denied the petition for removal. On August 13, 1924, the company filed certified copies of the record with the clerk of the federal court and served notice on defendant. No application to remand was made by defendant, and its counsel stated no such application would be made.

Plaintiff then filed this bill of complaint, asking that defendant be enjoined from taking further steps in the state court, and alleging, in addition to the facts above set forth, that the suit was one of a civil nature in equity and a controversy between citizens of various states, and exceeded in value the sum of $3,000 exclusive of interest and costs; that notwithstanding the fact that the case had been removed to the federal court, defendant asserted the jurisdiction of the state court and threatened to and would, unless restrained, cause proceedings to be taken in the suit in the state court, subjecting the company to double and expensive litigation; that the institution and prosecution of this cause in a state court was wrongful interference with the exclusive jurisdiction of the federal court over the property owned by the company and devoted to public service in the city.

The federal court held:

1. That the department of public works was the representative of the telephone users, and the subscribers were bound by the decree entered in the rate case.

2. That this proceeding was ancillary to the rate case now pending in the federal court and, therefore, the defendant would be enjoined from further proceeding in the state court.

3. That the three-judge court which issued the interlocutory injunction had before it the ordinance provision in issue, and, right or wrong, that issue was adjudicated and was the law of this case until the final hearing, unless reversed or modified by the appellate court.

Rate Increase Approved for Carter & Wabeno Telephone Co.

The Carter & Wabeno Telephone Co., operating small exchanges at Lakewood, Mountain, Wabeno and Laona, with a total of 219 subscribers, and 75 miles of toll line in Oconto and Forest counties, is authorized by the Wisconsin Railroad Commission in an order handed down November 28, to increase its rates to the following schedule:

BUSINESS TELEPHONES.

	Per Month.
Single party line	$2.50
Two or more party line	2.25

RESIDENCE TELEPHONES.

Single party line	2.00
Two or more party line	1.75
Rural telephones	2.00

SWITCHING FOR NON-SUBSCRIBERS.

Each station	.75
Each trunk line	1.25

EXCESS RADIUS CHARGES.

(Applicable to local telephone service only.)

The following monthly charges per quarter mile or fraction thereof are to be added to the base rate of local subscribers located outside base rate area, which area shall include all territory within one-half mile from each central office:

	Per Month.
One-party station	$0.50
Two-party station	.38
Three-party station	.25
Four-party station	.13

Alleging that revenues under the present rates are insufficient to meet operating expenses, and to provide for depreciation and a fair return on its investment; and further, that there is a demand for one to four-party service at unreasonable distances from central offices, the company asked that the schedule of rates given be approved and that it be authorized to collect such radius charges as the commission deemed reasonable.

The evidence presented in this case disclosed that all the petitioner's exchanges are magneto but that by the close of this year it will have completed the metallicizing of practically all of its lines.

The investment for the purposes of this case was placed at $24,000 by the commission. It was estimated that the present rates would fall fully $1,500 short of meeting the company requirements for depreciation and return. The proposed rates, together with radius charges as requested, it was estimated would increase the company's revenues by $1,420 per year. The commission, therefore, concluded that the rates proposed were not excessive and authorized them to be made effective as of December 1.

Summary of Commission Rulings and Schedule of Hearings.

CALIFORNIA.

November 28: The Santa Monica Bay Home Telephone Co. and the Santa Monica Bay Telephone Co. have filed a supplemental application with the commission asking that the sum of $100,000 be included in the commission's appraisal of property of the former, as going concern value, in fixing the transfer price to be paid by the latter in acquiring the former. The applicants set forth that the value of the properties of Santa Monica Bay Home Telephone Co. is $1,558,344.75, plus the value of additions and extensions from July 1, 1924, the date of transfer, less liability set forth in the application, and those incurred subsequent to July 1, 1924.

December 2: The Santa Monica Bay Telephone Co., in a supplemental application, asked the commission to authorize the issuance of $44,500 of its bonds to cover the purchase of $46,500 of bonds of Santa Monica Bay Home Telephone Co.

December 4: Application filed by the San Fernando Telephone & Telegraph Co. for authority to issue and sell 200 shares of its common capital stock, at not less than the par value of $100 per share, the proceeds to be used for additions and extensions to the plant.

MINNESOTA.

December 23: Hearing at St. Paul in re petition for consent of the commission for the sale by Northwestern Bell Telephone Co. and purchase by the Tri-State Telephone & Telegraph Co. of the exchanges at Marshall, Luverne, Pipestone and Minneota, Minn., and certain associated toll properties. M-1426.

December 18: Hearing at Springfield in the case of the Comfrey Rural Telephone Co., of Comfrey, vs. the Farmers & Citizens Mutual Telephone Co., of Springfield, and the Tri-State Telephone & Telegraph Co., in which the complainant alleges discrimination in charges for toll messages from and to Comfrey. M-1427.

NEBRASKA.

December 2: In the matter of the application of the Monroe Independent, the Skeedee, the Petersburg, and the Shell Creek Mutual telephone companies for permission to increase the person-to-person rate from 14 cents to 15 cents; found to be reasonable, and order issued accordingly.

December 3: Complaint filed by O. O. Wiggenjost against the Lincoln Telephone & Telegraph Co., alleging refusal to furnish individual service.

OHIO.

December 1: In compliance with the general order of the commission the Ohio Bell Telephone Co. filed an inventory of all its property in Ohio. Officials of the company asked at the time if an approximation could be made of the value of the property, replied that the sole effort of the company had been to complete the inventory and that no prices had been applied. They stated further that the engineers were now taking up the valuation of the property so that these figures would be available when called for by the commission.

December 1: Counsel for the Athens County Home Telephone Co., of Athens, filed a motion to dismiss the complaint of Wilbur Young et al. for the reason that there is not sufficient grounds for the attack on the company's rates. The petition states that the rates are believed to be unjust and excessive "because we are charged more than our neighbors who reside in the city," without alleging any further grounds.

December 4: The commission authorized the Warren & Niles Telephone Co. to purchase all of the property of the Newton Falls Telephone Co. The agreed consideration is $18,000, payable in common stock.

December 4: The commission authorized the Warren & Niles Telephone Co. to issue $50,000 common stock. Of the stock issue $18,000 is to be delivered for the property of the Newton Falls Telephone Co. and $32,000 is to be sold at par, the proceeds to be used to reimburse the treasury for $32,213.96 to August 1, 1924.

December 5: The commission approved

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Western Elec. Co., 2500 ohm self-contained ringers with gongs @	1.50
Kellogg Local or C. B. Transmitters, complete with back and mouthpiece @	1.15
Monarch or Dean Local or C. B. Transmitters, complete with back and mouthpieces @	.85
Western Elec. Co., 3-bar, 1000 or 2500 ohm Bdg. hotel sets equipped with Kellogg, Dean, Stromberg, or Monarch Transmitters and Rec. @	6.50
Monarch 4-bar, 1000 or 1600 ohm Bdg. compacts @ $7.50—5-bar @	9.00
Garford or Dean Pony type 4-bar, 1000 ohm Bdg. compacts @ $8.50, 5-bar @	9.00
Am. Elec. 3-bar 1000 ohm Bdg. Compacts @ $6.50—4-bar 1000 or 1600 ohm @ $7.00—5-bar @	7.75
Stromberg No. 104 type 4-bar 1000 or 1600 ohm Bdg. compacts @	7.50
Monarch 3-bar 1000 ohm Bdg. desk sets @ $8.50—4-bar 1000 or 1600 ohm @ $8.75—5-bar @	9.00
Garford 16-33-50 or 66 Cycle Harmonic ringers with gongs @	1.25
Western Elec. No. 143 W Receiver shells and caps, NEW @ 37c, lots 100 @	.35
Western Elec. Mouthpieces, NEW @ 7c, lots of 100 @	6¼c
Western Elec. Co., 3-bar 1000 or 2500 ohm desk set signal sets @	4.50
Dean or Kellogg Standard Size 1-M. F. Condensers @	.35
Kellogg No. 10½ M. F. Cond. @	.35

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S. C. compacts, 3 or 4 bar gen., 1000 or 1600 ohm ringers	$8.00 & 8.50
Dean compacts, 3 or 4 bar gen., 1000 or 1600 ohm ringers	8.00
Century compacts (good condition), 3, 4 or 5 bar gen., 1000 or 1600 ohm ringers, (equipped with W. E., Kellogg, S. C. or Century trans.)	6.50
Kellogg desk sets (compact type), 3 bar gen., 1000 or 1600 ohm ringer	8.50
4 bar gen., 1000 or 1600 ohm ringer	9.00
S. C. Desk stands (ball swivel type), with good misc. signal sets, 3 or 4 bar gen., 1000 or 1600 ringers	7.00
Kellogg No. 39 desk sets, with No. 75 steel signal boxes	7.50
S. C. Ball type desk sets, with wood or steel signal boxes, straight line or harmonic ringers	6.75
Dean late type desk sets, with steel or wood signal boxes, straight line or harmonic ringers	6.00
Kellogg steel hotel sets, straight line or harmonic ringers	7.00
S. C. Steel hotel sets, straight line or harmonic ringers	6.25
W. E. wood hotel sets	7.00
W. E., Kellogg or S. C. receivers	1.00
W. E., Kellogg or S. C. transmitters	1.00
Misc. good transmitters	.70
Misc. good receivers	.75
Receiver cords	.15
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W. E., Kellogg, S. C. or Dean harmonic ringers	1.00
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Mouthpieces (W. E. Kellogg, Dean and S. C.)	.08
W. E. ball type, single mounting	2.00
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the reorganization of the telephone property at Urbana. The Champaign Telephone Co., newly organized, was authorized to purchase all of the property of the Champaign Telephone Co. (which has $150,000 stock outstanding) for $210,000. The new company was also authorized to issue $210,000 common stock for the purpose of taking over the properties of the old corporation.

OKLAHOMA.

December 8: Hearing in the case of the Frisco Railway vs. F. H. Price, of Chickasha, alleging violation of order No. 1946 in re construction of telephone lines. No. 6176.

December 11: Hearing in re application of the Southwestern Bell Telephone Co. for permission to increase its rates at Durant. No. 4384.

December 12: Hearing in the case of C. C. Smythe vs. the Southwestern Bell Telephone Co., asking for telephone service as a regular subscriber in Oklahoma City. No. 6184.

December 12: Hearing in the case of Hotel Brady, Tulsa, vs. the Southwestern Bell Telephone Co., in regard to P. B. X. rates. No. 6185.

SOUTH DAKOTA.

November 29: The commission granted an increase in local rates to the Redfield Telephone Co., of Redfield, but denied the company permission to increase its rural rate. The company is ordered to keep its accounts in accordance with uniform system promulgated by the commission and to set up a depreciation reserve.

WISCONSIN.

December 22: Hearing at Madison on the application of the Juneau Telephone Co. for authority to dissolve the corporation. U-3148.

Exportation of Telephones Was Begun in 1878.

Although the first commercial telephone exchange in the world was not established until January 28, 1878, at New Haven, Conn., Bell telephones were shipped to Japan, China, Cuba and France some months before that date.

The first foreign shipment consisted of two telephones which were sent on September 25, 1877, to Bavier & Co., Yokohama, Japan. Shipments followed soon afterwards to Havana, Cuba; Paris, France, and to China, the latter being sent at the request of Cheney Brothers, silk manufacturers of South Manchester, Conn.

Among the earliest commercial users of the Bell telephone in this country were the Farragut House at Rye Beach, N. H., dating from June 15, 1877; the firm of Washburn & Moen at Worcester, Mass., beginning on July 11, 1877; the city messenger of Boston, in August, 1877; the Boston Public Library, dating from August 7 of the same year, and the Forbes Lithograph Co., dating from September 6.

The first public utility company to adopt the telephone was the Boston Gas Co., which inaugurated the service on October 15, 1877. The Fitchburg Railroad Co. also installed a telephone in October of 1877. Harvard College dates its services from October 3 of that year, and the Lewiston, Me., gas company from November 15. Evidently the first fire department to make use of the service was that of Fall River, Mass., which dates from September 18, 1877.

In 1877, beginning in June, an average of about 25 telephones were built a day and, as the demand grew greater, the number was increased to between 40 and 50 a day before the end of the year. In 1924 the Western Electric Co. was manufacturing nearly 1,000,000 telephones and using 30,000,000,000 feet of wire a year in the construction of telephone cable, but still the demand exceeds the supply.

HELP WANTED

WANTED—Experienced man of ability to fill position of combination wire chief and local manager at an exchange of about 1800 stations. Equipment old type Stromberg-Carlson common battery; no competition. Man must have good recommendations as to ability and character. Salary $175.00 per month with chance for advancement when merited. Address "Manager," 6108, care of TELEPHONY.

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